

AMERICAN

Cinematographer

JULY, 1968 • 35¢

MAGAZINE
OF
MOTION
PICTURE
PHOTOGRAPHY





From left to right, Andrew McLaglen, Director, and James Aronson, show and Associate Producer, look on as Mr. Southcott checks his camera.

**"FOR WIDE RANGE AND VISUAL ACCURACY...
GIVE ME DU PONT SUPERIOR® 2 AND 4"**

Says Fleet Southcott, Director of Photography for the top-rated CBS-TV show, "Gunsmoke"

"Camera-wise," reports Mr. Southcott, "'Gunsmoke' has everything: interiors...exteriors...close-ups...long shots. It's got terrific range, too—scenic as well as emotional. To keep our show tops, everything within this broad scope must

be translated visually for our audience. In striving for this result, I use Du Pont "Superior" 2 and 4 with great satisfaction."

"Superior" 2 and "Superior" 4 are just two of the fine Du Pont films for every motion picture need. These films—and complete technical data on them—are available through the Du Pont Photo Products sales offices below.



BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

Atlanta 16, Eas. 1737 Glenwood Dr. N.W.; Baltimore 34, Meas., 48-49A Ave. (Berlin); Chicago 48, Ill., 4550 Taylor Ave., Edgewater Sta.; Cleveland 18, Ohio, 20375 Center Ridge Road, Solon 3, Times, 1828 Oak Lawn Ave.; Los Angeles 34, Calif., 3550 Santa Monica Blvd.; New York 11, N.Y., 248 W. 110th St.; Wyomissing, Pa., 300 E. Lancaster Ave. (Phila.). Export, Montreal 304, Wilmington 30 Del. In Canada: Du Pont of Canada Limited, Toronto.

HIGH SPEED-HIGH VOLUME

Jet Spray



Processes up to 150 ft. of film per min.

When your 16mm and 35mm black and white film processing requirements call for high speed and/or high volume, the Houston Fearless Model S120PN Rapid Spray Processor will do the job superbly well. High-impingement jet-spray application of the developing solution, fix and wash (as well as impingement drying) makes possible processing of positive film at 150 f.p.m., negative film at 100 f.p.m. Complete cycle at top speed is only 5 minutes, dry to dry.

Fully automatic operation plus highly accurate temperature controls (within $\pm 1/4^\circ\text{F}$) assure uniformly fine results. Solution reservoir (adjustable to 5 or 10 gal. capacity), permits alternating between neg. and pos. processing. The machine also features a direct, positive film drive, automatic film-tension control, efficient air squeegees and electric tachometer. Wax or silicone applicator and archival wash are optional. Stainless steel throughout. Write or phone for brochure and prices.



**HOUSTON
FEARLESS**

DIVISION OF HOUSTON FEARLESS CORP.

See us in Booth 34 - S.P.I.E. - Los Angeles

HOUSTON FEARLESS DIVISION

11815 W. Olympic Blvd., Los Angeles 44, Calif.

Send catalogs and prices on:

- | | |
|--|--|
| <input type="checkbox"/> Other Film Processors | <input type="checkbox"/> Rapid Spray Processor |
| <input type="checkbox"/> Mix and Storage Tanks | <input type="checkbox"/> Color Processors |
| <input type="checkbox"/> Exhaust Hoods | <input type="checkbox"/> Air Units |
| <input type="checkbox"/> Tripods | <input type="checkbox"/> Solenoids |

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

BUDGET SAVING PRODUCTION ITEMS USED THE WORLD OVER



**AURICON PRO-600
AND SUPER 1200**

Auricon Pro-600 and Super 1200 Single system 16mm camera is the Camera. Latest model Clear-View 3 sound camera. TV Remote-control, NEW and USED in stock.



**CAMART DUAL SOUND
EDITOR — MODEL SR-111**

Lowest cost sound editing equipment if you can't afford a Moviola you can afford a Camart Dual Sound Editor.

Viewer \$175.00
2mm Moviestrip Viewer \$8.50
Special-Reader-Viewer
Combination \$47.50



**CAMART SLATE
& CLAPSTICK**

Large professional size for sound production. Contains space for all essential information. This is the same slate that originally sold for \$1.75. Now only \$4.75 plus postage.

THE CAMERA MART

1845 Broadway (at 40th St.) N.Y. 23

Phone 7-4877
Cable Cameraart

AMERICAN

Cinematographer

ARTHUR E. GAVIN, Editor

MARION HUTCHINS, Editorial Assistant

CONTRIBUTORS: Herb A. Lightman, Joseph V. Moscati, Clifford V. Hornington, Joseph Werry, Frederick Foster, Libero Grandi, Ronal, Jean Selinger, (Ford), Derek Hill (London)

Editorial and Business Office: 1783 North Orange Drive, Hollywood 28, Calif.
Telephone: HOLlywood 7-9135

Feature Articles

- THE MAN ON THE COVER 408
- MULTIPLE CAMERAS CUT SHOOTING TIME OF "BILL TO ETERNITY" 412
—By ORODIE J. RETONIS
- NEW, FAST COLOR FILMS MEET JET-AGE NEEDS 416
—By DR. NORWOOD SIMMONS
- THE "PIEZO PROCESS" 417
—By ARTHUR L. JESOL
- FILMING "THE STORY OF RUTH" 420
—By DARRIN SCOR
- SPEED KEYS CHESTERFIELD'S TV COMMERCIAL PRODUCTION 422
—By JOHN FORBES
- EXTENSION TUBES IN CINEMATOGRAPHY 424
—By JOSEPH HINNEY
- WIT-LITE—A PORTABLE LIGHTING UNIT FOR TV NEWS FLAMES 427
—By FREDERICK FOSTER
- HOW GOOD LIGHTING CAN ENHANCE THE INDUSTRIAL FILM 429
—By GLENN JOHNSTON
- WHEN WHEELS TURN BACKWARDS 430
—By ALVIN D. ROE
- SPEED—WHAT DOES IT MEAN IN PHOTOGRAPHY? 443
—By DON NORWOOD

Departments

- INDUSTRY NEWS 399
- WHAT'S NEW IN EQUIPMENT, ACCESSORIES, SERVICES 392
- QUESTIONS & ANSWERS 394
—By WALTER STRENCE, ASC
- PHOTOGRAPHIC ASSIGNMENTS 398
—By MARION HUTCHINS

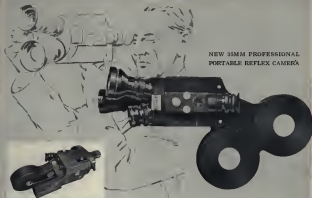
ON THE COVER

CINEMATOGRAFEE James Wang News, ASC, checks the lighting on Capucine, featured player in Columbia Pictures, "Song Without Words/The Prince and the Bean," which Howe photographed almost entirely in location exteriors in Vienna, Austria.

AMERICAN CINEMATOPHILE, established 1925, is published monthly by the A. E. C. Agency, Inc., 1182 N. Orange St., Hollywood 28, Calif. SUBSCRIPTION: United States and Canada, \$4.00 per year, foreign, including Post-American Union, \$5.00 per year. Single copies 35 cents, back numbers 45 cents. Foreign single copies, 45 cents. Back numbers, 50 cents. Advertising rates on application. Copyright 1965 by A. E. C. Agency, Inc. Second-class postage paid at Los Angeles, California.

NEW**MITCHELL R-35 *Reflex***
Hand Held or Tripod Mounted*

Here for the first time is a 35mm reflex motion picture camera which combines streamlined light-weight design with the full range of professional features. Its superbly engineered design by Mitchell—the world's leading source of professional motion picture cameras—assures a remarkable versatility in filming. Among the broad capabilities of the R-35 are: theatrical and television productions—on location and in the studio; underwater use; high speed instrumentation films; and both animation and stop-motion.



NEW 35MM PROFESSIONAL
PORTABLE REFLEX CAMERA

This camera produces steady, brilliant pictures through its use of dual registration pins and dual pull-down claws. A special series of Super Baltar matched F 2.8 lenses were specifically designed for the R-35 by Bausch & Lomb. Variable opening disc shutter provides positive exposure control. By means of a simple adaptor the R-35 can be used with standard Mitchell 1500' magazines for tripod mounting. These are but a few of the outstanding professional features that make the Mitchell R-35 a major cinematic development. Send for the new R-35 Bulletin. *Tripod adaptor and blimp available as accessories

MITCHELL R-35

See the new Mitchell R-35 at the SMPTE Convention in Los Angeles, Calif

MITCHELL CAMERA
CORPORATION
544 W. Harvard St., Glendale 4, Calif
Tel: 981-3331 "Mitchell"

NEW 1960 DESIGNS FOR YOUR EDITING ROOMS

CAMART EDITING TABLE



Custom built all welded steel construction, genuine laminate top built to "lock" with 12" fixed pedestal, casters, drawers, etc. — \$119.00
 Machine Jack, Machine Jack Model — \$119.00
 Other sizes in your specifications. Prices on request.

CAMART TIGHTWIND ADAPTER

- Auto ballistics triggered
- Electronic timing or strobes
- Winds film 100 ft. — \$109.00
- Packed in only 14 or 20 lbs. — \$14.95



NEW DESIGN FILM BIN WITH RACK

- Removable Cartridge Rack — \$20.00
- Film easily into camera
- Easy to view strip of film
- Hand mechanism — \$40.00
- Complete film rack — \$60.00
- With rack to roll — \$80.00

ECCO FILM CLEANER MODEL D



Clean, condition, and lubricate film in one easy operation. Film Solvent, alcohol, acetone, etc. — \$31.00
 Size No. 1200 cleaning fluid, per gallon — 9.00
 Size No. 2000 machine cleaning fluid, per 4.00

THE CAMERA MART

1645 Broadway (at 46th St.) N. Y. 22

PLAZA 7-9977

Cable: Camomart

INDUSTRY NEWS

News briefs of
industry activities,
products and progress

Brighter Outlook For Film Production

On the Hollywood scene, the future is brighter for cinematographers, camera crew members and other production technicians. Strike terminations last month resulted in optimistic planning of future feature film productions, stepped-up activity in studios.

In the realm of TV film production, next few months will see greatest production spent ever. Despite strikes, the vidofilm production output for next season is up about 18%. More than \$200,000,000 worth of network and syndicated TV films are in work or about to be started.

Meantime, the strikes in Hollywood appear to have given impetus to European film production. Early last month, more than 80 feature films were said to be in production in three of Europe's largest film production centers—Britain, France, and Italy. Whereas there were but 19 productions before the cameras in Hollywood, 52 were shooting in Italy, 28 in France and 20 in England.

★

Anso's Fine-grained, Super-Speed B&W Film Now in 16mm

Anso, last month, began marketing in 16mm width, its fine grain, super-speed black-and-white film, Anso Super Hypan. According to Anso, now film produces negatives of exceptional fine grain with excellent definition and gradation when used in either normal or subnormal lighting situations. The company recommends it for use in photo instrumentation, high-speed cinematography studies, news and sports photography, and time-lapse cinematography.

Super Hypan is available with either single or double perforation. Its resolving power is rated high—80/90 lines/mm.

ASA speeds are 500 for daylight, 400 for tungsten. Where developing times (barred processing) are extended to about 2 times normal, fully-lighted subjects with a short brightness range may be exposed at ASA indexes up to 1600 daylight and 800 tungsten.

SMPTe Takes Over Research Council's Test Film Program

The motion picture test film program formerly conducted by the Motion Picture Research Council in Hollywood, is being taken over by the Society of Motion Picture and Television Engineers, following dissolution of the Research Council.

Latter's test films will augment test film program of the SMPTe, in existence many years.

William F. Kelly, former head of the Research Council, will assist the SMPTe as a consultant in connection with the technical aspects of its new enlarged test film program.

★

F&B Workshop-Seminar in Animation Concluded

Approximately one-hundred animation artists and technicians representing 70 companies and organizations throughout the U. S. and Canada participated in the animation workshop seminar conducted in New York City June 12th to 15th, under the auspices of Florence & Bobb, manufacturers and distributors of motion picture equipment.

The three day seminar, first of its kind ever held in the U. S., featured speakers prominent in various phases of the motion picture industry. Ernest M. Pottier, TV film production supervisor at Dancer-Fingerhut-Sample, Inc., discussed the basic techniques

Continued on Page 446



ARTHUR FLORENCE (Florence & Bobb, Inc.) and speakers Miss Mary Ellen Kelly, MS Director of Test Research Center, New York, and Miss Patricia and Mrs. Robert J. Sample of "The Story Book" at recent F&B Seminar.

AnSCO 16mm Color Duplicating Film Type 238

SAVE RERECORDING COSTS!

Rerecording costs killing your rate structure? You can reduce from 35mm to 16mm directly without rerecording. Just use AnSCO 16mm Color Duplicating Film Type 238.

Type 238 reversal film is specifically designed to produce superb color renditions *plus* high fidelity sound through *direct* reduction!

From a cost and quality standpoint, doesn't it make sense to use 238? AnSCO, Binghamton, N. Y., A Division of General Aniline & Film Corporation.

AnSCO

Type 238

TIME SAVERS ON PRODUCTIONS

CAMART BABY DOLLY



Only a four-wheel dolly will provide the balance and stability required for professional production. Adjustable seat for cameraman, platform accommodates assistant.

\$425.00

Dolly tracks available

ARRIFLEX 16



16mm and 35mm cameras in stock for immediate delivery. Arriflex 35mm sound-proof kit also available. 600° magnifying, professional motion, view and sound.

BARDWELL LIGHTS



High power and for black and white or color.

Same lights the Hollywood professionals use.

\$81.00

SALE OR RENTALS

OF ALL PRODUCTION EQUIPMENT

Newton, Dallas, Arden, Aurora, Miami, Cameras, Design and Repair Shop

THE CAMERA MART

1845 Broadway (at 40th St.) N.Y. 23

Phone 7-9977

Cable: Camomart

WHAT'S NEW

in equipment, accessories, services



AC Power Supply

Cinekad Engineering Co., 763 10th Ave., New York 19, N.Y., announces a new combination DC Power Supply and battery charger designed especially for use with Arriflex 16 cameras. Unit is available in 2 sizes: The PS provides 8-volts DC at 3 amps. Net weight is under 4 lbs. The PS15 provides both 8 and 15 volts DC. Features include voltmeter, pilot lamp and line switch.



Automatic Dissolve

The Yalo Automatic Dissolve Attachment for Belex cameras is now available with provision for making fades in 25, 50 and 100 frame lengths. Different frame lengths are achieved through use of fade-length lever (arrow). All units now in use can also be modified at nominal cost to provide the multiple fades by Pellegrini-Park, 1545 Lombard Street, San Francisco 23, Calif.



Color Processors

Houston-Fearless Corp., 11805 Olympic Blvd., Los Angeles 64, announces a new series of machines for processing Kodachrome or Moviachrome motion picture film and slide film. Six models include units for 8/16mm, 35mm, and a duplex machine that processes both simultaneously. Operating speeds range from 1500 to 3600 ft. per hr. for 8/16mm film; 300 to 1500 for 35mm. Price of 16/8mm and 35mm model is \$28,450; duplex model, \$37,850.



Power Pack

Photomart, 228 So. Franklin St., Tampa, Fla., announces a completely self-contained power supply unit that provides 115-volts AC current for operation of the Auncon Cine-Voice camera. Trade-named the Rubylite Power-Pac, unit weighs 6 lbs. and comprises of charger and nickel cadmium lifetime battery. Unit will provide sufficient power to expose 30 rolls of film before recharging is required.



**Use the Quiet Running AURICON
16mm Sound-On-Film Camera...**

NEVER DISTURB THE AUDIENCE WITH CAMERA NOISE

Does the scene above look familiar? You may be interested to know more about its significance relative to your sound recording needs.

Here is Auricon Professional 16mm Motion Picture Sound Camera Equipment, operating right in the middle of an audience — actually within inches of the surrounding spectators! Yet, despite the complex precision mechanisms that are recording a full-color picture and every whispered word of the speaker on the rostrum, not even a murmur of distracting camera noise is heard by the audience. This quiet, dependable recording of 16mm Sound-On-Film Talking Pictures is the special engineering "magic" of Auricon!

Except for the red signal lights glowing on the Auricon Sound Camera, the audience has no way of knowing that the Camera is running. In fact, even the click of the on-off switch has been muted!

Auricon Cameras are versatile and easy-to-handle because there is no bulky, sound-proof enclosure "blimp" such as all other 16mm cameras use when recording sound.

Professional Producers and Cameramen choose Auricon to shoot pictures synchronized with Optical or Magnetic "Double-System" recording equipment, or to record "Single-System" sound on the same film taking the picture. Write us about your sound recording equipment needs today!

All Auricon Cameras are sold with a 30 day money-back guarantee.
You must be satisfied!

BACH AURICON, Inc.

6909 Romaine Street, Hollywood 28, California.
Hollywood 9-0981

MANUFACTURERS OF SOUND-ON-FILM
RECORDING EQUIPMENT SINCE 1931

Write for your free copy of this 24-page Auricon Catalog



MEDICAL



**Auricon
Hollywood**

**16MM
SOUND-ON-FILM
CAMERAS**



GME VOICE II
\$595.00 & UP
100 ft. Reels 24 min



AURICON SUPER-1280
\$1647.00 & UP
1200 ft. Reels 33 min



AURICON PRO-400
\$1,075.00 & UP
600 ft. Reels 144 min

THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

Is Proud to Announce the Publication of the

A. S. C. PHOTOGRAPHIC MANUAL

Comprising the greatest compilation of motion picture production data
ever assembled between the covers of a single book.

- All of the SHOOTING DATA for the cameramen filming THEATRICAL, TELEVISION, INDUSTRIAL, MILITARY, EDUCATIONAL, and DOCUMENTARY MOTION PICTURES.
- WIDE-SCREEN PROCESSES, complete aperture and viewfinder dimensions for all aspect ratios for 65mm, 35mm and 16mm; squeezed and squeezed photography, single-and double-frame.
- Complete LENS ANGLE DATA for all lenses for all aspect ratios.
- Latest film THREADING DIAGRAMS for all cameras.
- DETAILED LISTING OF ALL MODERN PROFESSIONAL CAMERAS: 65mm, 35mm, and 16mm.
- BLACK-AND-WHITE and COLOR FILM DATA, together with ASA ratings, IDENTIFICATION, and INCIDENT LIGHT READINGS for same.
- UP-TO-DATE data on LENSES, FILTERS, EXPOSURE and COLOR TEMPERATURE METERS.
- ILLUMINATION DATA for both Colortron type "boosted voltage" lighting and studio lights— together with foot candle, amperage and voltage tables and wiring diagrams.
- Data NEVER BEFORE PRINTED on: Fanning Speeds, Optical Effects, Ultra High Speed, Underwater Cinematography, Make-Up, Shooting Background Plates, Shooting Process Scenes, Shooting Day-for-Night (color & B&W).
- Special Text on EXPOSURE, COLOR, ILLUMINATION, ARCTIC and TROPIC CINEMATOGRAHY, INFRARED FILM, FILTERS, ETC.
- TABLES for compensating FILTER FACTORS, SHUTTER ANGLES, CAMERA SPEEDS.
- Many useful CAMERA, LENS, AND FILMING FORMULAS.
- Complete data for ULTRA CLOSE-UP CINEMATOGRAHY with EXTENSION TUBES, and DIFFUSER LENSES.

PUBLICATION DATE: AUGUST 15TH

\$7.50 PER COPY

Order Your Copy Today!

A.S.C. PHOTOGRAPHIC MANUAL
P.O. Box 2230, Hollywood 28, Calif.

Please reserve for me a copy of the ALL-NEW A.S.C. PHOTOGRAPHIC MANUAL.
Payment of \$7.50* is enclosed. Please ship C.O.D.

Name _____

Street & No. _____

City _____ State _____

*For orders mailed within California, please add 4% sales tax.

SOUND ADVICE:

Do it the right way.
Process your film
at General for the
trustful fidelity
in sound reproduction.

trained personnel . . .
the newest equipment . . .
exacting process control . . .
advanced test methods . . .
careful inspection . . .
pride in our work . . .

... these have given
General Film Laboratories
the top reputation
in the field of sound.


GENERAL
FILM LABORATORIES

1545 Argyle Avenue, Hollywood 28, California / Hollywood 2-4671

central division / 105 West 34th St., Kansas City 5, Mo. / OFord 3-0066

PERFECT COMBINATION

the
Miller Fluid-Action
Tripod Head Model "D"

and the
Sensational New Miller
Grooved Leg Ball
Levelling Top Tripod



The Miller Professional tripod is designed primarily for use with the Model "D" Miller Fluid Action Tripod Head. This tripod will accept other heads with 1/2" mounting threads.

The Miller tripod is designed for utmost rigidity and service with maximum weight. Features ball leveling top with 10° tilt level, has 22 degree levelling movement. Absorbing stress spring loaded.

Features automatic specifications with anti-tilt lock-wheel on both top sections to secure rigidity and prevent sagging. Double, replaceable heavy duty top legs with ball screw spur on each leg.

*Vee" section sliding members of selected ball screw while mounting set. Dressed with chrome and is equipped for smooth telescoping action and long life.

STANDARD MODEL

Height, high speed: 85 1/2"
Height, low speed: 37 1/2"
Weight: 11 1/2 lbs.

BABY MODEL

Height, high speed: 45"
Height, low speed: 26"
Weight: 10 lbs.

MILLER PROFESSIONAL EQUIPMENT

265 Melrose Avenue, Astoria, Oregon

WALTER STRENGE'S

QUESTIONS & ANSWERS

Need advice on a picture making problem? Your questions are invited and will be answered by mail. Questions and answers considered of general interest will appear in this column each month.



Q Would you recommend using a small incandescent light meter and translating the foot candle readings to f/ stops, ignoring the effect on all lights except the key light? Or to set the intensity and then, after adding all lights, back lights and fill lights, use the hemispherical light collection on the meter when taking a reading?—H.A.H.

Answer: The focus of the ratio of key light to fill light are a prime consideration here, and this depends on the type of film being used—black-and-white or color, and whether the photography is for theatre screen or television. With the focus established by the film and the ratio may be modified at the will of the cameraman to establish mood. For example, a fast-moving comedy type of action is generally shot with relatively high fill light—usually a ratio of 2 to 1 or 3 to 1. A tragic, dramatic action that might be enhanced by deep shadows, etc., would call for a ratio of around 8 to 1. The intensities of the key and back lights relative to the key light are usually established visually by the cinematographer to suit the artistic needs of the respective scene.

Q What zoom lens is presently available for the 16mm Arriflex camera?—L.C.R.

Answer: Arriflex Corp. of America offers two models of the Pan Cinco zoom lens for this camera—the Model 70 f/2.4 with a zoom range from 17.5mm to 70mm, and the Model 100 f/3.5 with a range of 25mm to 100mm. The first sells for \$360.00; the latter for \$410.00. The same company also supplies the Angenieux zoom lens having an aperture of f/2.2 at a range from 17.5mm to 70mm. Price of this lens is \$400.00. These lenses are in the permanent Arriflex mount.

Q When shooting on indoor sets, why does my color temperature meter vary its readings according to the distance from lights to subject? If my lights are balanced for 3,200° K, for instance, why should distance from the

lights make such a considerable difference?—

Also, when shooting out of doors in the shade, should the color temperature meter be pointed to the sky, in the direction of the camera? Instructions say "point face of meter toward the light source."—K.C.

Answer: A properly designed and constructed color temperature meter will indicate the correct CT of the prevailing illumination at the subject position regardless of the intensity of the light. Outdoors, when subject is in shade, and illuminated by skylight only, the color temperature would normally be measured by pointing the CT meter toward the sky, in the direction of the camera.

Q In soundtracking motion picture film, will a normal application of iron oxide magnetic track give better sound results than a brominated track? Should this be applied before or after applying a protective coat to the film? Also, if 16mm magnetic sound film is stored in a metal container, and wound on a metal spool, will this cause a loss of sound quality?—L.C.F.

Answer: There should be little or no difference in the sound quality rendered by either type track. The track material should be applied to the film before the protective coating is applied. We know of no instance where magnetic film or tracks have been adversely affected by storage in metal containers or reels.

Q Please give information about, and source of, colorbars ("cookies") which I now use extensively in entertainment and TV motion pictures. I would like to use this lighting effect on a small set 7 x 9 ft. size. What size would I need for this set and at what distance should it be placed in front of lamp to give the desired effect?—L.C.R.

Answer: Colorbars panels can be purchased from Mole-Richardson Company, 937 N. Syracuse Ave., Hollywood 28, Calif. You will probably need two for the area described. Set them 6 ft. in front of light source.

in the east...it's
MOVIELAB

for

color*

and

black

&
white



MOVIELAB

MOVIELAB FILM LABORATORIES
MOVIELAB BUILDING, 619 W. 54th ST.
NEW YORK 19, N.Y. JU6609 6-0360

*developing color negatives • additive color printing • reduction printing including A & B • color slide film processing • blowups • internegatives • Kodachrome scene-to-scene color balanced printing • Ektachrome developing and printing • registration printing • plus complete black and white facilities including cutting rooms, storage rooms and the finest screening facilities in the east.

Just Out! BRAND NEW 90 PAGE BEHREND CATALOG

- CAMERAS • LIGHTS
- EDITING EQUIPMENT
- SOUND EQUIPMENT
- ANIMATION EQUIPMENT

WRITE FOR YOUR
COPY NOW!



**BEHREND
CINE CORP.**

141 E. GRAND AVE.
CHICAGO 11, ILL.
MILWAU 2-2220

Formerly Tele. Equip. Co.

THE

RUBYLITE



PORTABLE MOVIE LIGHT

- Smooth, even 3400° K. light in white-angled beam. No glowing hot spots.
- Fits any camera. No lens needed, no hot-to-dry.
- Long life nickel-cadmium battery with built-in charger. Weighs only 5 lbs.
- Guaranteed one year.

\$199.50

Complete With Battery

Rubylite Converters run Audiotex Cameras from same battery. Write for complete information.

PHOTOMART

228 W. FRENCH ST. • RAMP 2, MILWAU
TELEPHONE: 2-1100

PHOTOGRAPHIC ASSIGNMENTS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

By MARION HUTCHINS

ASSIGNED ARTISTS

EDWIN FRANK, "The Plunderers" with Jeff Hauder and Debra Hart. Joseph Perry, director.

AMERICAN NATIONAL
MICHAEL ANDERSON, "Sea Hunt" (20 TV) with Lloyd Bridges.

CASCADE PICTURES
GEORGE FOLGER, ASC, "Cometwails"
ELWOOD BRIDGES, ASC, "Cometwails"
ROY SEABRIGHT, "Cometwails"

COLUMBIA STUDIOS
PHILIP TANNURA, ASC, "Two Faces West" (Studio Genre) with Charles Brannan and Tom Elin. Don Gold, director.

ROBERT COFFEY, ASC, "Cry for Happy" (Wayman Goss Prods.) with Gena Ford and Donald O'Connor. George Marshall, director.

ORION PICTURES, "The Game of Nations" (Color, Highland Prods.; shooting in Greece) with Gregory Peck and David Niven. Alexander Markovitch, director.

CHARLES LINTON, Jr., ASC, "The Weekend Ship in the Army" (C/Scope & Color, Fred Kalbfleisch Prods., shooting in Hawaii) with Jack Lemmon and Betty Nelsen. Richard Hupfey, director.

JOE McDONALD, ASC, "Papa" (George Selwyn Int'l. Prods.; CinemaScope & Color) with Genevieve, Dan Bailey and Shirley Jones. George Selwyn, producer-director.

DEWEY STUDIOS—Gower
ROBERT DE GRANGE, ASC, "Jack Benny Show" (Dewey Prods.) with Jack Benny. Norman Abbott, director.

WALT DISNEY STUDIOS
RAY REYNOLDS, ASC, "Dinner at Eight" with Dorey Mearns and Eddy Waller. Lewis Foster, director.

EDWARD GILMAN, ASC, "The Absent-Minded Professor" with Fred MacMurray and Nancy Olson. Robert Stevens, director.

GENERAL SERVICE STUDIOS
HAL MOORE, ASC, "Cometwails" (Filmways, Inc.)

HAROLD LINTNER, ASC, "Adventures of Ozzie & Harriet" (Stage 5 Prods.) with Ozzie, Harriet, David and Ricky Nelson. Ozzie Nelson, director.

GOLDWYN STUDIOS
MALVIN GUTTMAN, ASC, "Pebble Big Story" (Zivich Pictures; UA release) with James Brown and Merry Anderson. Edw. L. Cahn, director. "No Place to Run" (Zivich Prods.) (UA) with Jane Evans, Sam Foster. Edw. L. Cahn, director.

LEON BRAMSON, ASC, "Go North" (CinemaScope & DeLuxe color) with John Wayne and Stewart Granger. Henry Hathaway, director.

INDEPENDENT

CHARLES LANG, Jr., "The Facts of Life" (Powers-Frank Prods. for UA) with B-4 Hope and Lucille Ball. Mel Frank, director.

JAMES SKELLEN, ASC, "Tides for DeLuxe" (CBA Motion Picture Prods., NBC release, shooting in Alaska, Greenland and U.S.) Lowell Shaffer and Edo Tannell, directors.

LARRY LINDSEY, ASC, "A Matter of Conscience" (Contemporary Prods. for UA, shot on 16 mm) with Bart Lancaster and Dana Merrill. John Frankenhofner, director.

CARL GUTTMAN, ASC, "Five Minutes to Live" (Flower Film Prods.) with Johnny Cash and Donald Woods. Ed Kama, director.

ADRIAN HICKMAN, "Berger" (AIP, Emmy color, shooting in London) with Michael Gough and Margo Johns. John Leonard, director.

SAM LEVITZKY, ASC, "Eunice" (Panavision & Color, Otto Preminger Prods., U.S. release, shooting in Israel) with Paul Newman and Eva Marie Saint. Otto Preminger, director.

HAROLD WELLES, "Angel Baby" (Madona Prods.; Generalized Broadcasting Co.) with George Hamilton and Mercedes McCambridge. Fred Weisfeld, director.

FRANK PASTER, ASC, "Kag of Kings" (Tech Pacific, Samuel Bruma Prods., shooting in Spain) with Jeff Hunter and Robert Ryan. Nicholas Ray, director.

KEYWEST STUDIOS
WALTER STRINGS, ASC, Series of religious films (Keywest Films) Eddie Dev, director.

METRO-GOLDWYN-MAYER
DALL NEWMAN, "One Step Beyond" with John Newland.

WILLIAM SPENCER, "Cometwails"
HAROLD WILLIAMS, ASC, "Admiral, The Last Crusade" (WestColor, George Pal Prods.) with David Niven and Joyce Taylor. George Pal, director.

KIP CARSON, "Rehearsal Breakdown" with Steve Durren and Mark Roberts.

JOSEPH RUTENFRANZ, ASC, "Bridget Jones" (Adams-Lachbrook Prods., shooting in N.Y.) with Elizabeth Taylor and Laurence Harvey. Daniel Mann, director.

MILTON KAMEN, ASC, "Go Naked in the World" (Arrow Prods.) with Gena Lollobrigida and Anthony Franciosa. Ronald MacDonald, director.

JOHN NICHOLAS, "Ravikid" (CBS TV) with Eric Fleming and Chet Eastwood.

PARAMOUNT STUDIOS
WILLIAM STUTTER, ASC, "Bonanza" (NBC TV) with Michael Landon and Dan Blocker.
LOVELL GRIFFIN, ASC, "G.I. Hush" (Color, Hal Wallis Prods.) with Elva Priddy and Juliet Prowse. Norman Taurog, director.

Continued on Next Page

The Answer to Your Zoom & Telephoto Lens Tripod Problems

SILICONE DAMPENED 'HYDROFLUID' BALL-LEVELING PAN & TILT HEAD TRIPOD

**AN N-C-E ORIGINAL
IN TRIPOD STYLING
AND PERFORMANCE**

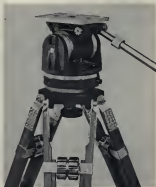
with

*Larger Silicone Dampening Area Than
Any Tripod in Its Class and Price Range*

- ▶ Designed for professional cameramen.
- ▶ Velvety smooth, jerk-proof pan and tilt action, utilizing the dampening effect of silicone.
- ▶ Aluminum construction; weight 21 lbs.
- ▶ Silicone loaded—temperature range—130°-500°F
- ▶ Precision ball-bearings. Mounted on pan and tilt shaft for smooth action and alignment.
- ▶ Pan 360°—Tilt 80°.
- ▶ First tripod of its kind with ball-type leveling at bottom of base with positive lock at NO EXTRA CHARGE
- ▶ Tripod base of seasoned V-type maple-wood legs, with self-aligning leg locks
- ▶ For all cameras 40 lbs. or less.

"HYDROFLUID" TRIPOD DESIGNED FOR

TV Videocon—16mm—Mouset—Camerette—
Arriflex 16/35—Auricon (Cine-Voice-400-1200)
Cine Special—Eyma—Rimo—Cineflex



Hydrofluid ball-leveling head—precision construction—patented equal finger camera lock—variable tension adjustment pan and tilt locks—split level—telescopic pan handle with variable angle adjustment—right or left hand position

SPECIAL INTRODUCTORY PRICE **\$ 329.50**
COMPLETE WITH TRIPOD LEGS

BABY TRIPOD	\$69.50
HIGH HAT	29.50
CASE	32.00
FOOT & POINT COVER	12.50

NATIONAL CINE EQUIPMENT, Inc.

209 WEST 48th ST., NEW YORK 36, N. Y.
Circle 6-0348

PRECISION® FILM EDITING EQUIPMENT

Precision Unitized Film Synchronizer



Model 5035-T
Single Sprocket 25mm
Synchronizer \$85.00
Sing to Sprocket 25mm
Synchronizer \$85.00
(not shown)



Model 5016-B
Three sprocket
16mm Synchronizer
\$124.00 with
Speaker and Map
unit head
\$215.75



Sprocket Assemblies
26 or 32mm \$32.50 ea.

optical-magnetic sound readers



Model 800
\$259.50



Model 800L
\$289.50

optical sound readers



Model 600 EL
\$195.00



P.O.S. Inc.

magnetic film and tape sound reader



Model 700
\$189.00

Send For Free Literature

PRECISION LABORATORIES
DIVISION OF PRECISION CINE EQUIPMENT CORPORATION
1837 UTICA AVENUE BROOKLYN 3, N.Y.

**AFTER 22 YEARS AT THE SAME LOCATION,
TELEFILM IS STILL THE BEST ONE-STOP
16MM MOTION PICTURE SERVICE OFFERING
SPEED, QUALITY, AND DEPENDABILITY.**

TELEFILM

INCORPORATED

6039 HOLLYWOOD BLVD., HOLLYWOOD 28, CALIF.

A leading 16mm motion picture technical service
since 1938

PHOTOGRAPHIC ASSIGNMENTS

Continued from Pleading Page

JEAN BOUDOUN. "The Countess of Tenda" (Tribune; Paramount Pictures Prod., showing in West End-on) with William Hall and Lili Palmer. George Stuenkel, director.

JOSEPH L'ESPERANCE, ASC. "All in a Night's Work" (Hal Wallis Prod.) with Dean Jagger and Shirley MacLaine. Joseph Anthony, director.

PARAMOUNT UNIVIS STUDIOS

FLEET SCHNEIDER. "Gentlemen" with James Arness and Doris Wayne.

FRANK PHILLIPS. "Hose Can Will Travel" with Warner Anderson and Tooty Tully.

REPUBLIC STUDIOS

ERNEST LAGIDE, ASC. "The Day of the Gun" (Raynagood, shooting in Mexico) with Buck Hutton and Dorothy Malone. Robert Aldrich, director.

ROBERT KRAIGER. "Romance of Juliet" (Color); Paper Prod., shooting in Italy with Peter Ustinov and Sandra Dee. Peter Ustinov, director.

ERNEST HALLER, ASC. "Fort No. Nine" (Schwarzschild Prods.) with Jacques Bergeron and Mela Parnes. Bruce Wayne, director.

BYRONA MEYER, ASC. "Midnight Love" (Color; Arvin Prods.) with Doris Day and Rex Hutton. David Miller, director.

CAROL CHAMBER. "The Green in Green" (Grunden Prods., shooting in England) with Cary Grant and Deborah Kerr. Stanley Donen, director.

ROBERT BERRY, ASC. "The Great Impersonator" with Tony Curtis and Karl Malden. Robert Mulligan, director.

ELMER CARTER, ASC. "Seven Ways From Sunday" (Color) with Audie Murphy and Barry Sullivan. George Sherman, director.

EMERY SCHNEIDER. "Death Valley Days" (Filmaster Prods.).

REVUE STUDIOS

JOHN WARNER, ASC. "Alfred Hitchcock Presents" (Revue Prods.).

ELIO TRACERRE, ASC. "Cowboys 9" (Revue Prods.); "Machin" (Revue Prods.) with Ray Milland.

ROY KLING, ASC. "Commercials" (Revue Prods.).

WILLIAM SCHNEIDER, ASC. "Commercials" (Revue Prods.).

WILLIAM DANIELA, ASC. "Commercials" (Revue Prods.).

TWENTIETH CENTURY FOX

WILLIAM MILLER, ASC. "The Big Gamble" (C-Scope & Color; Darryl Zanuck Prod., shooting in Europe) with Stephen Boyd and Jeanette Green. Richard Fleischer, director.

LESTER BALLARD, ASC. "Dance in the Dark" (API, C-Scope, shooting in Texas Range) with Raymond Burr and Martha Hott. William Christy, producer-director.

FLOYD GORDY, ASC. "Freakies" (API, C-Scope) (Color) with Marge West and Carol Christopher. Andrew V. McLachlan, director; "Walk Tall" (C-Scope & Deluxe Color; API Prods., shooting at Big Bear) with William Parker and Joyce Meadows. Mancy Dutton, director.

DARWIN FAYE, ASC. "Let's Make Love" (C-Scope & Color) with Marilyn Monroe and Yves Montand. George Cukor, director.

Continued On Page 446



CECO 35mm PROFESSIONAL FILM
VIEWER WITH DOUBLE SYSTEM
SOUND READER



CECO HI-SPEED EDITING TABLE
(In 16mm and 35mm models)



CECO 8-100 PROGRAMMING DEVICE
(Intercomaster)



CECO LS-1 SYNCHRONIZER & FILTER
HOLDER FOR CINE SPECIALS AND
BOLTZ CARTRAGS
(Cine Specials illustrated)

SALES-SERVICE-RENTALS

*CECO—Trademark for Cenco Equipment CO.

ONLY CECO GIVES YOU

THESE

PLUSES



SALES AND SERVICE OF THE
WORLD'S FINEST PROFESSIONAL

FILM MAKING EQUIPMENT

—PLUS THE TECHNICAL GUIDANCE
TO GET THE MOST OUT OF THEM

PLUS *ex-Ceco delivery—anywhere
in the world—within your budget!*

PLUS *a Repair Department staffed
with technicians, expert in every
phase of professional Motion Picture
and TV equipment repair!*

**GET
ALL
THE
FACTS!
SEND
THIS
POSTAGE
FREE
CARD
TODAY!**



VOLTALOC NICKEL-CADMIUM
LITE-WEIGHT BATTERIES



CECO 8-140 REMOTE CONTROL PAN
AND TILT HEAD WITH "GO-A-STOP"



CECO TR-8 PROFESSIONAL JUNIOR
REACTION HEAD TRIPOD

CENCO EQUIPMENT CO. INC. 313 West 43rd St., New York 36, N.Y.
Rdco. 6-1400

Gentlemen: I am interested in the items checked below.
Please rush me more free information on these products.

- | | |
|--|--|
| <input type="checkbox"/> C-2549 Stop Motion Motor | <input type="checkbox"/> RT-3 Traped Tri-Beam Clamp |
| <input type="checkbox"/> S-1403 Remote Control Head | <input type="checkbox"/> 20mm Professional Film Viewer |
| <input type="checkbox"/> TR-8 Reaction Head Tripod | <input type="checkbox"/> Varioflex Motion Camcorder, Belafonte |
| <input type="checkbox"/> LS-1 Synchronizer & Filter Holder | <input type="checkbox"/> Receptacle Spectrometer |
| <input type="checkbox"/> S-100 Programming Device | <input type="checkbox"/> Washbush Gensite Log |
| <input type="checkbox"/> Cooke Lenses | <input type="checkbox"/> Knapen Steelsheet |
| <input type="checkbox"/> Hi-Speed Lining Table | <input type="checkbox"/> Travel Portable Plot Splicer |
| <input type="checkbox"/> Forming Film Solvent | |

Name _____ Title _____
Firm _____
Address _____
City _____ State _____ Zone _____



TINED PORTABLE HOT SPLICER
(8mm-16mm and 16mm-35mm Models)



CLEO C-554H STOP MOTION MOTOR
FOR ARRI/LEE TARRI CAMERA

PLUS the largest supply of Mollan Picture, TV and Photo-Instrumentation equipment for sale or rent anywhere!



RANGERONE SYNCHROIZER
(1/4" Synch Playback Control)

PLUS a full staff of trained camera, lighting, sound, editing and projection engineers at your back and call to solve your problems... no charge for consultation service!



RENTON HYDROSCOPIC STABILIZER



PERIMULICE MAGNETIC FILM SPICER
(For 16mm and 35 mm)

FIRST CLASS
PERMIT No. 4236
New York, N. Y.
Sec. 349, P. L. & R.

BUSINESS REPLY MAIL

NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY

CAMERA EQUIPMENT COMPANY, INC.
DEPT. 62, 315 WEST 43RD STREET
NEW YORK 36, N. Y.

PLUS more offices to serve you better... New York... Miami, Florida... and Hollywood, California!



COOKE BIMETAL AND SERIES II LENSES



CLEO TT-3 TRIPOD TIE-DOWN CLAMPS



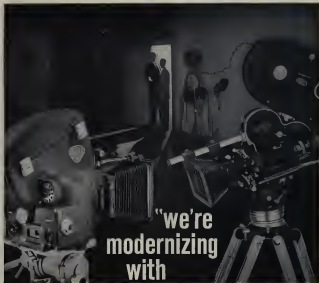
MACRETH ORBITAL LEO

In New York
Camera Equipment Co., Inc.
315 W 43rd St., New York 36, N.Y.

In Florida
Camera Equipment Co., Inc. of Florida
1335 East 10th Ave., Miami, Florida

In Hollywood, California
Call JACK PILL • POlar 3-8555

PLUS modern facilities consisting of a Machine Shop with the latest equipment; a Sound Department with complete facilities; fully equipped Camera, Lighting, Editing and Projection Departments; and an Engineering and Design Department second to none!



"we're
modernizing
with

ARRIFLEX"

What leads veteran film producers to "retool" with ARRIFLEX, as their assignments become more and more challenging?

The answer has been spelled out with persuasive certainty over Arri's young, dynamic history—in terms of rugged precision, versatility, and money-saving advantages.

Hundreds of industrial and theatrical film producers use ARRIFLEX 16mm and 35mm cameras exclusively. In many cases, Arri equipment was first tried experimentally... then swiftly took over the lion's share of production filming.

Have you ever handled an Arriflex? You can get to know its exceptional features by writing to us for detailed literature... or to arrange a demonstration through one of our franchised dealers.

ARRIFLEX CORPORATION OF AMERICA
257 PARK AVE. SOUTH • NEW YORK 10, N. Y.

Without obligation, I would like:

- ☐ LITERATURE
☐ DEMONSTRATION
☐ ON ARRIFLEX 16
☐ OR ARRIFLEX 35

Name _____

Address _____

Company _____

Telephone _____

City _____

State _____

Zip _____



ARRIFLEX

CORPORATION OF AMERICA
257 PARK AVENUE SOUTH • NEW YORK 10, N. Y.

S.O.S. ANNUAL SALE

Take Your Pick from Our \$250,000 Stock!

LIMITED QUANTITIES... MANY ONE OF A KIND... HUNDREDS OF UNADVERTISED SPECIALS INCLUDED IN THIS SALE... THESE LOW, LOW PRICES IN EFFECT UNTIL SEPT. 1ST, 1960

S.O.S. REMOVES THE GUESS... BUT THESE CLEARLY DISCLOSED BARGAINS SAYET

Many items from our retail inventory at S.O.S. carry various Union references indicated, everything is in serviceable condition, guaranteed exactly as represented. Write, Wire, or Phone Your Needs

● CAMERAS, 35MM

Mitchell HC fixed, stripped, heads considerable repairs	\$ 595.00
Mitchell single lens mount, 113V Sync motor (14 1/2") camera	495.00
BBK 3700 with dual lens, pilot pin movement, 15500 value	1250.00
Sony with prism, electronic shutter	1750.00
DeVry with lens, single frame	129.50
Contalighs, portable, pilot pins, 110V motor, 200 mag, case	295.00
Wall, Mamiya Camera, 8 lenses, 34000 mag, 12V motor, Mitchell type finder, daylight lens	895.00

● CAMERAS, 16MM

Cine Special 1 w/Per Cineo 40 lens	\$ 349.50
Cine Special II w/2000 chamber, 3 lenses and case	595.00
Auricon Pro-350 lens sound	395.00
Heuser modified 16, synchronous, 400 megaflex, 4-lens turret	895.00
Heuser 25 w/finder, 400 mag, synchronous, multiflex, case 15400 value	1895.00
BBK Special w/finder, 400 mag	
Synchromatic Mitchell type Finder, gas find, case, 15000 value	495.00
Balco Supreme automatic, lens lens	349.50
Balco Concept 400 mag, neckover, telescopic finder, 110V wild motor	595.00
BBK 70 w/400 mag, 3 Caria lenses, case, 15150 value	449.50
Auricon 16 w/3 Katan lenses, motor lens, break lens	1230.00

● CAMERA ACCESSORIES

Mitchell Aerial Vertical viewfinder 50" groundglass, 16" 16.5 BBL lens, Worth for use in parts	\$ 19.95
Manometer Dial w/valve head, 7" lens height, 3 sets, Mkt. 74000 for 8 lens Cost \$4000	795.00
Mitchell 3rd 3000" 8g magnifying	149.50
Auricon 35mm 300" mag, synchronous, Graflex type	49.50
Cine Special 100" chamber	125.00
Cineflex 35mm 300" magnifying (convertible in Auricon)	6.95
Triplet Triangles, present shipping 130 value, New	14.95
California Triplet Triangles with 14 down clamp New	34.50
Balometer 1 1/2" 8.2 lens, Cine Special mount, 100" \$177.50	29.50
Photo Research Sparkle Motors with Blinds, spheres, case 3 Color	129.50
	349.50

Contalighs Blimp, sponge-lined for 1300" Motor or other camera with variable motor	\$ 49.50
Mkt for 3 Triplet New	15.95
Cine Cine Special Blimp, synchronous	369.00
Mitchell type heavy-duty Triplet, 1/4" or 3rd (takes Mitchell, Mamiya, Fujinon or Cine TV lens) New	119.50
Flame Ballistic Alignment Gauge	99.95
Sony Lens, 16mm, 15.9, (35mm focus)	39.50
BBK 400 40" 12.8 Gvg \$447.50	99.95
8" Gvg Platform, 1400 800 lbs 4 1/2" head-tilt top and retractable ladder \$220 value	149.50

● CAMERA MOTORS AND ELECTRICAL EQUIPMENT

Milby 35 Motors, 24V, 1/2" \$400	\$ 99.50
Cine Special 12V variable with tachometer \$298 value	149.00
Cine Special 110V AC eyes \$138 val	99.50
Milby HC 24V w/tech, \$535 val	232.00
Milby 110V AC/DC Unit Motor with tachometer \$125 value	395.00
BBK 3700, 12V governor controlled, Graflex (Contalighs) DC 12V and 24V features 110V DC Interlock for Mitchell Standard	149.50
Westinghouse 110V DC Interlock, BBK Motor 1200/1400 RPM	99.50
Western Mitchell 350V 3ph Interlock 1200 RPM	49.50
Milby 220V 3ph Interlock Motor DC to AC Converter, U.S. Navy Std 330/110 or 115/115, 155KVA capacity, Westinghouse, 110V	195.00
Amper Projects Synchromotor, Graflex	119.50

● RECORDING EQUIPMENT

Wetzel 35mm Optical Recorder, out-right purchase	\$ 995.00
Western 35mm Synchronizer, 320V 3ph Interlock motor \$1200 value	395.00
Wetzel Cine Lath Recorder, stripably \$4000	395.00
AA Rika 8mm and 3 wheel Style Perimeter Interchangeable	395.00
ICA Photohema 35mm Optical Record ing Heads, 1000" mag, less motor No Extra required	1995.00
ICA Photohema 35mm Photorecord ing photograph w/3000" motor Originally \$4500	895.00
Heuser 35mm Sync Magnetic Recorder, 254 w/photocoupler, speaker \$1200 value	495.00
Emerson 37V-mm Sync Magnetic Recorder \$1800 value	495.00
Heuser 35mm Magnarator P1000, portable built in amplifier, synchronization, 2 pps. motor, \$4500 value	995.00
Graflex/Emerson Photo Motor, instant perfor recording, 0-4g \$1500	495.00
DeVry 35mm Soundheads w/phase shift optical system, center lamp and gears Good for film phase or sound readers, March 3900	19.95
DeVry 35mm Soundheads less optics	9.95

● CUTTING ROOM SUPPLIES

Maxwell 4-gang 35mm Synchronizer	\$ 89.50
Maxwell 35mm 3-gang Max Mach	44.95
Maxwell Synchronizer 16mm single	87.50
Maxwell 16mm Dualmaster \$130 val	79.50
Maxwell 16mm Mastering Machine	
Single \$29.50	Dual
Only 16mm Viewers \$49.50 value	34.95
Maxwell 35mm 3-gang Mastering	
Machine, postage & items counters	29.50
Trade 35mm 3-gang Synchronizer,	
slip frame 3 or 2 to 1 Per optical	
or special effects	139.50
Maxwell 35mm 1-gang Synchronizer	29.50
Maxwell 35mm 1-gang Max Mach	29.50
New 5-2 1/2" 8/16mm sync-magnets	
for Splicers \$10.95, reduced to	9.95
RAN 35mm Hand Splicer, \$35.00 val	4.85
New 35mm 16mm Slicer 8-2	15.95
New Permex Trip Editing Tables 40"	
with recessed light \$110 value	79.50
Oliver Marking Copiers, 1/2"	
price Per dozen	5.00
16mm Film Film Shipping Cases	
Ocean line New	
400' 800' 1200' 1400' 2000'	
1 reel \$1.10 1/2 \$1.35 1 1/2 \$1.75 2 1/2 \$2.00	
3 reel 2.30 4 reel 2.55 5 reel 2.80 6 reel 3.05	
7 reel 3.30 8 reel 3.55 9 reel 3.80 10 reel 4.05	
11 reel 4.30 12 reel 4.55 13 reel 4.80 14 reel 5.05	
15 reel 5.30 16 reel 5.55 17 reel 5.80 18 reel 6.05	
19 reel 6.30 20 reel 6.55 21 reel 6.80 22 reel 7.05	
23 reel 7.30 24 reel 7.55 25 reel 7.80 26 reel 8.05	
27 reel 8.30 28 reel 8.55 29 reel 8.80 30 reel 9.05	
31 reel 9.30 32 reel 9.55 33 reel 9.80 34 reel 10.05	
35 reel 10.30 36 reel 10.55 37 reel 10.80 38 reel 11.05	
39 reel 11.30 40 reel 11.55 41 reel 11.80 42 reel 12.05	
43 reel 12.30 44 reel 12.55 45 reel 12.80 46 reel 13.05	
47 reel 13.30 48 reel 13.55 49 reel 13.80 50 reel 14.05	
51 reel 14.30 52 reel 14.55 53 reel 14.80 54 reel 15.05	
55 reel 15.30 56 reel 15.55 57 reel 15.80 58 reel 16.05	
59 reel 16.30 60 reel 16.55 61 reel 16.80 62 reel 17.05	
63 reel 17.30 64 reel 17.55 65 reel 17.80 66 reel 18.05	
67 reel 18.30 68 reel 18.55 69 reel 18.80 70 reel 19.05	
71 reel 19.30 72 reel 19.55 73 reel 19.80 74 reel 20.05	
75 reel 20.30 76 reel 20.55 77 reel 20.80 78 reel 21.05	
79 reel 21.30 80 reel 21.55 81 reel 21.80 82 reel 22.05	
83 reel 22.30 84 reel 22.55 85 reel 22.80 86 reel 23.05	
87 reel 23.30 88 reel 23.55 89 reel 23.80 90 reel 24.05	
91 reel 24.30 92 reel 24.55 93 reel 24.80 94 reel 25.05	
95 reel 25.30 96 reel 25.55 97 reel 25.80 98 reel 26.05	
99 reel 26.30 100 reel 26.55 101 reel 26.80 102 reel 27.05	
103 reel 27.30 104 reel 27.55 105 reel 27.80 106 reel 28.05	
107 reel 28.30 108 reel 28.55 109 reel 28.80 110 reel 29.05	
111 reel 29.30 112 reel 29.55 113 reel 29.80 114 reel 30.05	
115 reel 30.30 116 reel 30.55 117 reel 30.80 118 reel 31.05	
119 reel 31.30 120 reel 31.55 121 reel 31.80 122 reel 32.05	
123 reel 32.30 124 reel 32.55 125 reel 32.80 126 reel 33.05	
127 reel 33.30 128 reel 33.55 129 reel 33.80 130 reel 34.05	
131 reel 34.30 132 reel 34.55 133 reel 34.80 134 reel 35.05	
135 reel 35.30 136 reel 35.55 137 reel 35.80 138 reel 36.05	
139 reel 36.30 140 reel 36.55 141 reel 36.80 142 reel 37.05	
143 reel 37.30 144 reel 37.55 145 reel 37.80 146 reel 38.05	
147 reel 38.30 148 reel 38.55 149 reel 38.80 150 reel 39.05	
151 reel 39.30 152 reel 39.55 153 reel 39.80 154 reel 40.05	
155 reel 40.30 156 reel 40.55 157 reel 40.80 158 reel 41.05	
159 reel 41.30 160 reel 41.55 161 reel 41.80 162 reel 42.05	
163 reel 42.30 164 reel 42.55 165 reel 42.80 166 reel 43.05	
167 reel 43.30 168 reel 43.55 169 reel 43.80 170 reel 44.05	
171 reel 44.30 172 reel 44.55 173 reel 44.80 174 reel 45.05	
175 reel 45.30 176 reel 45.55 177 reel 45.80 178 reel 46.05	
179 reel 46.30 180 reel 46.55 181 reel 46.80 182 reel 47.05	
183 reel 47.30 184 reel 47.55 185 reel 47.80 186 reel 48.05	
187 reel 48.30 188 reel 48.55 189 reel 48.80 190 reel 49.05	
191 reel 49.30 192 reel 49.55 193 reel 49.80 194 reel 50.05	
195 reel 50.30 196 reel 50.55 197 reel 50.80 198 reel 51.05	
199 reel 51.30 200 reel 51.55 201 reel 51.80 202 reel 52.05	
203 reel 52.30 204 reel 52.55 205 reel 52.80 206 reel 53.05	
207 reel 53.30 208 reel 53.55 209 reel 53.80 210 reel 54.05	
211 reel 54.30 212 reel 54.55 213 reel 54.80 214 reel 55.05	
215 reel 55.30 216 reel 55.55 217 reel 55.80 218 reel 56.05	
219 reel 56.30 220 reel 56.55 221 reel 56.80 222 reel 57.05	
223 reel 57.30 224 reel 57.55 225 reel 57.80 226 reel 58.05	
227 reel 58.30 228 reel 58.55 229 reel 58.80 230 reel 59.05	
231 reel 59.30 232 reel 59.55 233 reel 59.80 234 reel 60.05	
235 reel 60.30 236 reel 60.55 237 reel 60.80 238 reel 61.05	
239 reel 61.30 240 reel 61.55 241 reel 61.80 242 reel 62.05	
243 reel 62.30 244 reel 62.55 245 reel 62.80 246 reel 63.05	
247 reel 63.30 248 reel 63.55 249 reel 63.80 250 reel 64.05	
251 reel 64.30 252 reel 64.55 253 reel 64.80 254 reel 65.05	
255 reel 65.30 256 reel 65.55 257 reel 65.80 258 reel 66.05	
259 reel 66.30 260 reel 66.55 261 reel 66.80 262 reel 67.05	
263 reel 67.30 264 reel 67.55 265 reel 67.80 266 reel 68.05	
267 reel 68.30 268 reel 68.55 269 reel 68.80 270 reel 69.05	
271 reel 69.30 272 reel 69.55 273 reel 69.80 274 reel 70.05	
275 reel 70.30 276 reel 70.55 277 reel 70.80 278 reel 71.05	
279 reel 71.30 280 reel 71.55 281 reel 71.80 282 reel 72.05	
283 reel 72.30 284 reel 72.55 285 reel 72.80 286 reel 73.05	
287 reel 73.30 288 reel 73.55 289 reel 73.80 290 reel 74.05	
291 reel 74.30 292 reel 74.55 293 reel 74.80 294 reel 75.05	
295 reel 75.30 296 reel 75.55 297 reel 75.80 298 reel 76.05	
299 reel 76.30 300 reel 76.55 301 reel 76.80 302 reel 77.05	
303 reel 77.30 304 reel 77.55 305 reel 77.80 306 reel 78.05	
307 reel 78.30 308 reel 78.55 309 reel 78.80 310 reel 79.05	
311 reel 79.30 312 reel 79.55 313 reel 79.80 314 reel 80.05	
315 reel 80.30 316 reel 80.55 317 reel 80.80 318 reel 81.05	
319 reel 81.30 320 reel 81.55 321 reel 81.80 322 reel 82.05	
323 reel 82.30 324 reel 82.55 325 reel 82.80 326 reel 83.05	
327 reel 83.30 328 reel 83.55 329 reel 83.80 330 reel 84.05	
331 reel 84.30 332 reel 84.55 333 reel 84.80 334 reel 85.05	
335 reel 85.30 336 reel 85.55 337 reel 85.80 338 reel 86.05	
339 reel 86.30 340 reel 86.55 341 reel 86.80 342 reel 87.05	
343 reel 87.30 344 reel 87.55 345 reel 87.80 346 reel 88.05	
347 reel 88.30 348 reel 88.55 349 reel 88.80 350 reel 89.05	
351 reel 89.30 352 reel 89.55 353 reel 89.80 354 reel 90.05	
355 reel 90.30 356 reel 90.55 357 reel 90.80 358 reel 91.05	
359 reel 91.30 360 reel 91.55 361 reel 91.80 362 reel 92.05	
363 reel 92.30 364 reel 92.55 365 reel 92.80 366 reel 93.05	
367 reel 93.30 368 reel 93.55 369 reel 93.80 370 reel 94.05	
371 reel 94.30 372 reel 94.55 373 reel 94.80 374 reel 95.05	
375 reel 95.30 376 reel 95.55 377 reel 95.80 378 reel 96.05	
379 reel 96.30 380 reel 96.55 381 reel 96.80 382 reel 97.05	
383 reel 97.30 384 reel 97.55 385 reel 97.80 386 reel 98.05	
387 reel 98.30 388 reel 98.55 389 reel 98.80 390 reel 99.05	
391 reel 99.30 392 reel 99.55 393 reel 99.80 394 reel 100.05	
395 reel 100.30 396 reel 100.55 397 reel 100.80 398 reel 101.05	
399 reel 101.30 400 reel 101.55 401 reel 101.80 402 reel 102.05	
403 reel 102.30 404 reel 102.55 405 reel 102.80 406 reel 103.05	
407 reel 103.30 408 reel 103.55 409 reel 103.80 410 reel 104.05	
411 reel 104.30 412 reel 104.55 413 reel 104.80 414 reel 105.05	
415 reel 105.30 416 reel 105.55 417 reel 105.80 418 reel 106.05	
419 reel 106.30 420 reel 106.55 421 reel 106.80 422 reel 107.05	
423 reel 107.30 424 reel 107.55 425 reel 107.80 426 reel 108.05	
427 reel 108.30 428 reel 108.55 429 reel 108.80 430 reel 109.05	
431 reel 109.30 432 reel 109.55 433 reel 109.80 434 reel 110.05	
435 reel 110.30 436 reel 110.55 437 reel 110.80 438 reel 111.05	
439 reel 111.30 440 reel 111.55 441 reel 111.80 442 reel 112.05	
443 reel 112.30 444 reel 112.55 445 reel 112.80 446 reel 113.05	
447 reel 113.30 448 reel 113.55 449 reel 113.80 450 reel 114.05	
451 reel 114.30 452 reel 114.55 453 reel 114.80 454 reel 115.05	
455 reel 115.30 456 reel 115.55 457 reel 115.80 458 reel 116.05	
459 reel 116.30 460 reel 116.55 461 reel 116.80 462 reel 117.05	
463 reel 117.30 464 reel 117.55 465 reel 117.80 466 reel 118.05	
467 reel 118.30 468 reel 118.55 469 reel 118.80 470 reel 119.05	
471 reel 119.30 472 reel 119.55 473 reel 119.80 474 reel 120.05	
475 reel 120.30 476 reel 120.55 477 reel 120.80 478 reel 121.05	
479 reel 121.30 480 reel 121.55 481 reel 121.80 482 reel 122.05	
483 reel 122.30 484 reel 122.55 485 reel 122.80 486 reel 123.05	
487 reel 123.30 488 reel 123.55 489 reel 123.80 490 reel 124.05	
491 reel 124.30 492 reel 124.55 493 reel 124.80 494 reel 125.05	
495 reel 125.30 496 reel 125.55 497 reel 125.80 498 reel 126.05	
499 reel 126.30 500 reel 126.55 501 reel 126.80 502 reel 127.05	
503 reel 127.30 504 reel 127.55 505 reel 127.80 506 reel 128.05	
507 reel 128.30 508 reel 128.55 509 reel 128.80 510 reel 129.05	
511 reel 129.30 512 reel 129.55 513 reel 129.80 514 reel 130.05	
515 reel 130.30 516 reel 130.55 517 reel 130.80 518 reel 131.05	
519 reel 131.30 520 reel 131.55 521 reel 131.80 522 reel 132.05	
523 reel 132.30 524 reel 132.55 525 reel 132.80 526 reel 133.05	
527 reel 133.30 528 reel 133.55 529 reel 133.80 530 reel 134.05	
531 reel 134.30 532 reel 134.55 533 reel 134.80 534 reel 135.05	
535 reel 135.30 536 reel 135.55 537 reel 135.80 538 reel 136.05	
539 reel 136.30 540 reel 136.55 541 reel 136.80 542 reel 137.05	
543 reel 137.30 544 reel 137.55 545 reel 137.80 546 reel 138.05	
547 reel 138.30 548 reel 138.55 549 reel 138.80 550 reel 139.05	
551 reel 139.30 552 reel 139.55 553 reel 139.80 554 reel 140.05	
555 reel 140.30 556 reel 140.55 557 reel 140.80 558 reel 141.05	
559 reel 141.30 560 reel 141.55 561 reel 141.80 562 reel 142.05	
563 reel 142.30 564 reel 142.55 565 reel 142.80 566 reel 143.05	
567 reel 143.30 568 reel 143.55 569 reel 143.80 570 reel 144.05	
571 reel 144.30 572 reel 144.55 573 reel 144.80 574 reel 145.05	
575 reel 145.30 576 reel 145.55 577 reel 145.80 578 reel 146.05	
579 reel 146.30 580 reel 146.55 581 reel 146.80 582 reel 147.05	
583 reel 147.30 584 reel 147.55 585 reel 147.80 586 reel 148.05	
587 reel 148.30 588 reel 148.55 589 reel 148.80 590 reel 149.05	
591 reel 149.30 592 reel 149.55 593 reel 149.80 594 reel 150.05	
595 reel 150.30 596 reel 150.55 597 reel 150.80 598 reel 151.05	
599 reel 151.30 600 reel 151.55 601 reel 151.80 602 reel 152.05	
603 reel 152.30 604 reel 152.55 605 reel 152.80 606 reel 153.05	
607 reel 153.30 608 reel 153.55 609 reel 153.80 610 reel 154.05	
611 reel 154.30 612 reel 154.55 613 reel 154.80 614 reel 155.05	
615 reel 155.30 616 reel 155.55 617 reel 155.80 618 reel 156.05	
619 reel 156.30 620 reel 156.55 621 reel 156.80 622 reel 157.05	
623 reel 157.30 624 reel 157.55 625 reel 157.80 626 reel 158.05	
627 reel 158.30 628 reel 158.55 629 reel 158.80 630 reel 159.05	
631 reel 159.30 632 reel 159.55 633 reel 159.80 634 reel 160.05	
635 reel 160.30 636 reel 160.55 637 reel 160.80 638 reel 161.05	
639 reel 161.30 640 reel 161.55 641 reel 161.80 642 reel 162.05	
643 reel 162.30 644 reel 162.55 645 reel 162.80 646 reel 163.05	
647 reel 163.30 648 reel 163.55 649 reel 163.80 650 reel 164.05	
651 reel 164.30 652 reel 164.55 653 reel 164.80 654 reel 165.05	
655 reel 165.30 656 reel 165.55 657 reel 165.80 658 reel 166.05	
659 reel 166.30 660 reel 166.55 661 reel 166.80 662 reel 167.05	
663 reel 167.30 664 reel 167.55 665 reel 167.80 666 reel 168.05	
667 reel 168.30 668 reel 168.55 669 reel 168.80 670 reel 169.05	
671 reel 169.30 672 reel 169.55 673 reel 169.80 674 reel 170.05	
675 reel 170.30 676 reel 170.55 677 reel 170.80 678 reel 171.05	
679 reel 171.30 680 reel 171.55 681 reel 171.80 682 reel 172.05	
683 reel 172.30 684 reel 172.55 685 reel 172.80 686 reel 173.05	
687 reel 173.30 688 reel 173.55 689 reel 173.80 690 reel 174.05	
691 reel 174.30 692 reel 174.55 693 reel 174.80 694 reel 175.05	
695 reel 175.30 696 reel 175.55 697 reel 175.80 698 reel 176.05	
699 reel 176.30 700 reel 176.55 701 reel 176.80 702 reel 177.05	
703 reel 177.30 704 reel 177.55 705 reel 177.80 706 reel 178.05	
707 reel 178.30 708 reel 178.55 709 reel 178.80 710 reel 179.05	
711 reel 179.30 712 reel 179.55 713 reel 179.80 714 reel 180.05	
715 reel 180.30 716 reel 180.55 717 reel 180.80 718 reel 181.05	
719 reel 181.30 720 reel 181.55 721 reel 181.80 722 reel 182.05	
723 reel 182.30 724 reel 182.55 725 reel 182.80 726 reel 183.05	
727 reel 183.30 728 reel 183.55 729 reel 183.80 730 reel 184.05	
731 reel 184.30 732 reel 184.55 733 reel 184.80 734 reel 185.05	
735 reel 185.30 736 reel 185.55 737 reel 185.80 738 reel 186.05	
739 reel 186.30 740 reel 186.55 741 reel 186.80 742 reel 187.05	
743 reel 187.30 744 reel 187.55 745 reel 187.80 746 reel 188.05	
747 reel 188.30 748 reel 188.55 749 reel 188.80 750 reel 189.05	
751 reel 189.30 752 reel 189.55 753 reel 189.80 754 reel 190.05	
755 reel 190.30 756 reel 190.55 757 reel 190.80 758 reel 191.05	
759 reel 191.30 760 reel 191.55 761 reel 191.80 762 reel 192.05	
763 reel 192.30 764 reel 192.55 765 reel 192.80 766 reel 193.05	
767 reel 193.30 768 reel 193.55 769 reel 193.80 770 reel 194.05	
771 reel 194.30 772 reel 194.55 773 reel 194.80 774 reel 195.05	
775 reel 195.30 776 reel 195.55 777 reel 195.80 778 reel 196.05	
779 reel 196.30 780 reel 196.55 781 reel 196.80 782 reel 197.05	
783 reel 197.30 784 reel 197.55 785 reel 197.80 786 reel 198.05	
787 reel 198.30 788 reel 198.55 789 reel 198.80 790 reel 199.05	
791 reel 199.30 792 reel 199.55 793 reel 199.80 794 reel 200.05	
795 reel 200.30 796 reel 200.55 797 reel 200.80 798 reel 201.05	
799 reel 201.30 800 reel 201.55 801 reel 201.80 802 reel 202.05	
803 reel 202.30 804 reel 202.55 805 reel 202.80 806 reel 203.05	
807 reel 203.30 808 reel 203.55 809 reel 203.80 810 reel 204.05	
811 reel 204.30 812 reel 204.55 813 reel 204.80 814 reel 20	

BIG SALE!!!

● MOVIE & EDITING MACHINES

Movielite Preview 16mm Composite and 16mm Sound	\$ 1,492.00
Movielite Sound Preview 25mm UDF PCL 8" x 10" large picture	\$2,330 value
Acetate 16mm Viewers w/sounds, 6"x8 1/2" picture material	\$1,500 value
Altey 16mm Viewer, sound and composite 5"x7 1/2" aerial image	\$3,000 value, dealer's 1.6 cut
25mm Movielite C with 3" picture, no sound, automatic takeups	189.00
Deane of good 25mm Sound Movielite starting at 31mm Movielite C with 3" picture, no sound. Close out	45.00
Acetate Preview 25mm composite sound/picture (6"x8 1/2") w/sounds and sound 8" center	\$3,000 value
Altey modified 16mm Picture Viewer with footswitch	\$230 value

MAKE YOUR CHOICE EARLY!

These Customers Won't Be Here Long!

MINIMUM ORDER \$5.00

● FILM PROCESSING EQUIPMENT

Fillette Bridgeomatic 1.6 / 3.5 mm mag./mm processor, w/six 16" slide developer	\$2,300 value
Harvard-Jordan Sabonette 16mm (normal), 2 magnifiers, like new	\$3,793.00
Fillette Bridgeomatic Jr. 1.6 mm mag./mm processor, w/six 16" slide used intensifier, recalibrated	\$1,700 value
Harvard 16/25mm Color Processor, Magnificent stainless steel beauty worth \$23,000	\$1,793.00
Harvard 16/25mm mag./mm Processor, w/six magnifiers, recalibrated, elegantly, stainless steel, complete, temperature control, 1,300° per hr. Gert paid \$10,000	\$2,993.00
Harvard K-3 Processor 16mm mag./mm processor, w/six magnifiers, temperature control, recalibrated, air pump stainless steel	\$2,993.00
Harvard-Jordan 16mm daylight loading magnifier for all HP processors	\$1,000 value
Harvard Rubber Magnifier, soft, adjustable wiper blades for 16 or 25mm processor/classroom. New, per dozen, \$1.20 per 100	9.00
Stromman 16/25mm Developing Outfit, 200' in case, complete with loading device	\$200 value
New Stromman Drying Rack, 300' 25mm capacity (usable for 16mm) \$25 value	1.95
Chemical Mixing Tank, stainless steel, w/ 110 gals. mounted at angle iron stand	\$143 value

● LIGHTING EQUIPMENT

Northlight Industrial Reflectors, last stands 2000W, \$99.50; 5000W, \$500.00	29.50
Breeds on stands, large	29.50
BN type Sports on stands. Copax model, rebuilt 1000W, \$49.50; 2000W	89.50
MR Cut & Killip 3000W Srs. w/sounds	149.50
Good Bulbs 358 / 2000 / 3000 / 50,000W 75% off	29.50
Model-Shimomura 120 amp. Meters (Type 82) on pedestal with grid, tubes	\$1,275 value
MR Ther-A-Round on heavy stand with ballast, \$5.00 amp	29.50
48" Silver Reflectors on rolling stands \$200 value	99.50
Good Utility Trips, acid free, cement, etc. \$50 value	1.95
60 Lamp, all new 1800W 120 C12	2.95
Algal Sound Regularity \$7.90 - 1000W 948 C12 Mag. System	5.95
Extension 8 Power Cables 22' w/ballast plug on line	12.95
2000W Power Unit, voltmeter, Var-Lite, fused circuit breakers, heavy cables, & double plugboards, 4 and outlets 320' 115W on dolly	\$1,690 value
Harvard Gen Power Unit 40 amps, 120V, automatic w/stop, frequency controls On 3 wheel trailer	\$3,000 value
750-1000 Amp DC Converter, 100 HP motor 220-440V, 7.5 HP starting motor, paint, 30' cable 3 lines 4.0	\$4,000 value

WRITE, WIRE OR PHONE FOR INFORMATION

DON'T WAIT UNTIL YOU'RE LEFT WITH

Many items only one of a kind. Take advantage of these greatest bargains in studio history.

● PROJECTORS, BACKGROUND SCREENING and PREVIEW

Super EP Simplex 35mm and 16mm	\$ 193.00
Simplex 35 35mm projector model R	855.00
Simplex SP 35mm Projector, 2000' mag., 1000W lamp, lens, amplifier, speaker	292.00
Simplex Clarks for screening rooms, used and rebuilt (find for Clair) Item	3.95
Background Area Projector, 35mm movies or slides, 120 amp. transformer, Harvard, lens cut \$18,000 to build, uncompleted, as is Plus rental	495.00
Pilbeam 35mm Stereo Background Projector, built by Wille for schools	\$1,993.00
Maker Simplex-Dynalite 35mm Sound Projector, Harvard, 2000' mag., built-in soundhead lens and lamphouse Orig. \$1,500 New, cleaned	293.00
Simplex Acme 25mm Air Sound Projector, amplifier & speaker, lens pedestal	293.00
Harvard 25mm Sound Projector, 2,000 mag., lens, built-in soundhead, 1,000W lamphouse	193.00
Preview Interlock Projector, DeVry, 1,000W lamp, lens picture and sound simultaneously	993.00
BBH Reformer 16mm Sound Projector, built-in amplifier, lens, pedestal, 30A amplifier, 50W amplifier, 3 speakers, \$2,000 value	975.00
QR PA-100A 16mm TV Sound Projector, complete, lens, pedestal	29.50
QR PA-100A 16mm TV Sound Projector, complete, lens, pedestal, 2,400' and \$2,500 value	1,293.00
Simplex Projector Mechanisms	19.50
Hi-Intensity Area w/reflectors	199.00

● MISCELLANEOUS

Slide Library, modified Bulb, mounting frame	\$.49
Vendor Rest 2 digit auto system, rubber type \$12 value	98
Three Digit auto control Camera, 1/1000's, address and rubber	1.95
Two, 3000' value like new	79.50
Wetzel Floures 300' Recorder, \$200 value like new	149.50
Schreibmeyer 2000 Slide Projector w/built-in Screen and Case \$523 value	149.50

THESE BARGAIN PRICES IN EFFECT

UNTIL SEPT. 1, 1940

MINIMUM ORDER \$5.00

The Department Store of the Motion Picture Industry Since 1926

"The Department Store of the Motion Picture Industry"

S.O.S. CINEMA SUPPLY CORP.

702 WEST 52nd ST., NEW YORK 19, N.Y.
Phone: PLaza 7-6410 Cable: 10350ND

WESTERN BRANCH—6331 Hollywood Boulevard, Hollywood 28, California—Telephone: HOLlywood 7-2124



HOLLYWOOD BULLETIN BOARD

News and pictures of
the ASC, its members and
industry personalities.



WALTER STRONGE (right), Past president of the ASC, was honored with a testimonial dinner by the Society at its clubhouse in Hollywood, May 23rd. Among speakers who lauded Stronge's accomplishments during his 2-year tenure as President was Ben Maltz. (left) Afterward, Arthur Miller, in behalf of the Society, presented Stronge with a gold money clip as a memento of his outstanding service.



Emory Nurse

Dr. H. Zimmerman

Emory Nurse, who for more than 30 years has headed Eastman Kodak's technical services to motion picture film producers and laboratories in the Hollywood area, retired June 30th. He was succeeded as manager of the West Coast division of Kodak's motion picture film department by Norwood L. Simmons, former assistant manager of the division.

Nurse, an Associate Member of the ASC, is widely known for his many contributions toward improved and more uniform technical quality of Hollywood films. For many years his name has appeared on the masthead of *American Cinematographer* as Technical Editor.

Members of the ASC, last month, mourned the loss of two of its veteran members—Sol Polito and Edward Cronjager. Polito died of a heart attack at his home May 23rd. He had been in retirement for several years, following an automobile accident. For more than 10 years, Polito was one of Warner Bros. ace cinematographers. His last assignment was "Anna Lucasta" for Columbia in 1949.



Sol Polito

Cronjager died June 15th, following a long illness. He joined the ASC in 1953 and until recent years he was a cinematographer at 20th Century-Fox. More recently he had photographed films for Zan-TV. His last assignment was "The Threat" for Warner Bros.



Ed Cronjager



POL LATHEOP (right), newest member of the ASC, was formally introduced to his brother members by President Lee Green at the ASC's May dinner meeting. Latheop is currently shooting the "Mr. Lucky" TV film series at MGM Studios.

ASC members witnessed filmed demonstrations at its June meeting of Eastman Kodak's recently introduced ultraviolet Ektachrome EK color films. The presentation was conducted by Kodak's John Warner.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

FOUNDED January 8, 1919, the ASC was established to advance the art and the science of cinematography, to encourage better and sterner (for press) action, excellence, artistic perfection and scientific knowledge in all matters pertaining to cinematography; to bring into closest consideration those leaders in the cinematographic science whose achievements in that field outside their own membership in the Society, and to promote the interests of all who shall be called to membership in the ASC, that such membership may become a mark of honor and distinction based on merit.

OFFICERS

Lee Garrett, President
Hal Rosson, 1st Vice-president
William Dworetz, 2nd Vice-president
Joseph Egan, 3rd Vice-president
Walter Stronge, Treasurer
Charles Clarke, Secretary
Victor Milner, Sergeant-at-Arms

BOARD OF GOVERNORS

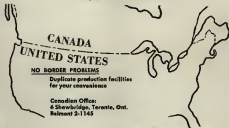
Arthur Edson, Daniel Fapp, George Folsey, Bennett Gaffey, Sol Halprin, Ray Kinschick, John Seitz, and Philip Van Curen.


One Source for PRODUCTION RENTAL NEEDS!



- LIGHTING . ARCS . INCANDESCENT
- MOBILE GENERATORS
- TRANSFORMERS
- CAMERAS . . CRANES . . DOLLIES
- CAMERA CARS
- TECHNICAL CONSULTANTS

Frost will handle your production needs from conference room to film con. Studios . . . Transportation . . . Unit Managers . . . Talent . . . Crews . . . Locations . . . Make-up . . . and Script Personnel. Our expanded facilities are yours for the asking.



Faster Service Because We  Our Own

JACK-A-FROST

MAIN OFFICE
124 Plymouth
DETROIT 2, MICHIGAN
Windy 3-9880

CANADIAN OFFICE
4 Sherbrooke
TORONTO, ONTARIO
Belmont 2-1145

HOLLYWOOD OFFICE
1224 Tenth
N. HOLLYWOOD, CALIFORNIA
FDyle 2-8276

THE NEW LOWE LIGHT

PAT. PEND.

IS GOING PLACES—
where other
lights can't go

TAPES ONTO WALLS, WINDOWS, BEAMS

Attaches quickly,
shock, safely to wood,
plaster, brick, metal, tile,
etc. with Lowel-Light
Gaffer Tape

Offers the finest
universal metal head
designed light prism,
high temperature cord
and socket, sturdy
aluminum construction

LOCKS ONTO PIPES, SHELVEs, FURNITURE

New interchangeable
device clamps instantly
to hundreds of objects.
5 Lowel-Lights and
Self-locks fit
easily into a three
cartridge smaller
than a pack of

SO COMPACT—IT FITS IN YOUR POCKET

1 set with Gaffer Tape... \$9.95
2 sets with 2 sets Gaffer Tape... \$19.95
3 sets with 3 sets Gaffer Tape... \$29.95

LOWEL LIGHT PHOTO EQUIPMENT, DEPT. C
421 WEST 84th STREET, NEW YORK 18, N.Y.

Specialized LIGHTING EQUIPMENT

for
MOTION PICTURE, STILL,
and
TELEVISION STUDIOS



Write for a Copy of Our

1960 Catalog & see Your Satisfaction

Mole-Richardson Co.

107 NORTH STANBARD AVENUE
HOLLYWOOD 38, CALIF.

THE MAN ON THE COVER

James Wong Howe, ASC

THIS MONTH'S MEN displayed by Director of Photography James Wong Howe, ASC, on our cover this month typifies the farthest attention he gives to photographing every scene for Columbia Pictures' CinemaScope-and-color production, "Song Without End—The Franz Listz Story."

In the cover photograph, Howe is checking the lighting on Capucine, a featured player in the production and one of France's best-known models.

Howe, one of the most colorful cinematographers in Hollywood, is an Academy Award winner for the photography of "The Rose Tattoo," and he subsequently received considerable acclaim and an Academy Nominations Certificate for his photography of "The Old Man And The Sea."

Howe's assignment to photograph "Song Without End" posed something new for him in location shooting. The one selected by the producers for the major portion of location filming was Vienna. It probably marked the first time in history that a Hollywood company had traveled more than 6,000 miles, not to film a single exterior, but to shoot just interiors—interiors in Vienna's famed concert halls, opera houses, palaces and cathedrals. The latter part of the location shooting was done at the Weimar Theatre in Bayreuth and the Cuvillier Theatre in Munich, Germany.

In Vienna Howe filmed the opening scenes in the fabled Schoenbrunn Palace, former summer residence of Emperor Franz Josef and the place where the son of Napoleon lived and died.

There was plenty of room to shoot, Howe says, adding that there are 1441 rooms and 159 kitchens in the Palace.

Howe found a wonderful outlet for his penchant for mood lighting in color when it came time to shoot scenes within the Schloss Theatre, one of the finest gems of baroque architecture in all Europe.

But not all of Howe's pictorial compositions were architectural. Most scenes were lavishly decorated with people, too. Five hundred extras were used for the huge concert scenes.

For Jimmy Howe, the serious job of photographing the picture had its lighter moments too. He likes to recall how Austrian officials were responsible for holding up shooting one day when they discovered the producer, with Hollywood's Production Code in mind, had ordered plastic fig leaves mounted on the undraped figures of a statuary group, before which an important scene was to be played. However, the shocked Ministry of Statues would have no part of the "censorship" and ordered the fig leaves removed, stating "We will allow no one to change the face of history!"



CINEMATOGRAPHER James Wong Howe checks a camera setup for a scene to be filmed in one of the many location interiors in Vienna, for Columbia Pictures' "Song Without End—Story of Franz Listz."

PROFESSIONAL JUNIOR*—product of experience

and friend to
thousands of cameramen

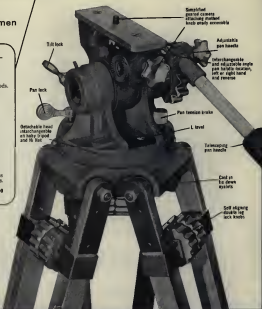
All tripods have one thing in common—they rest on three legs. But there the comparison ends.

Because PRO JUNIOR towers like the Empire State Building over ordinary tripods.

Because PRO JUNIOR is the world's most convenient tripod with the world's finest features, including:

- Simplified camera attaching method
- Adjusting telescoping pan handle with adjustable stop
- Lockets for left, right or reverse tilt
- Internal pan bracket adjusting knob, independent of pan lock
- Cast in tie-down spools
- Self-adjusting double leg locking levers
- IDEAL FOR NOTION PICTURE and TV VISION CAMERAS

And still the price is unchanged, which makes PRO JUNIOR the world's best tripod value. Price goes for PRO JUNIOR. See it today. **\$399.00**



GEO Professional Jr. Hi-Mat

An adapter for extremely low-mount setups; also used for tilt stands and permanent mountings. Handles either friction or geared-drive tripod heads \$22.90



GEO Professional Jr. Adjustable Wooden Baby Tripod

Accepts all Pro Jr. Tripod Heads. Has reinforced shoe and spur. Measures 36" extended from foot to flange, 18" collapsed. Weight 7 lbs. **\$75.00**



PROFESSIONAL JR. Geared Head

Used on Professional Jr. standard tripod. Crank handles control pan and tilt action. **\$175.00** Head only. **\$225.00** Complete with tripod.

FRANK C. ZUCKER

CAMERA EQUIPMENT CO., INC.

Dept. A 315 West 42nd St., New York 36, N. Y. JEden 6-1429



One of the most unusual offers ever made by Hollywood Camera Co., this Acme animation unit is a complete **system** ready to go to work for you. It is priced at a fraction of original cost, and at less than half of any comparable stand. At this low price you can add your own animation to low budget films, and you will find the stand will pay for itself over a very short period of time.

The Acme animation system is capable of handling a wide variety of animation work, special effects, titles and film strips. Developed for high-speed production, all movements are accomplished with hand and foot controls from the operating position. This model incorporates motorized vertical drive, vacuum pressure plates and a separate electrical control panel.

An Acme animation camera with four 400 foot magazines and stop-motion motor is included. The background projector, a must for special effects work, is also equipped with a stop-motion motor, and is controlled from the main panel.

Other features include camera mount with full drift compensation, wide range of movements, back lighting, and fully adjustable platen.

The base is a single heavy duty casting to provide the utmost in stability and freedom from vibration. All switches, controls, scales and cables are included. Lenses not included.

ACME ANIMATION SYSTEM

\$7950⁰⁰

A \$25,000 VALUE

ALSO AVAILABLE

Separate Acme Cameras, Motors,
Magazines, Lenses, Background
Projectors, etc.

Made to highest precision standards, the Acme stand is designed for the professional who requires the ultimate in an animation stand, yet is priced by Hollywood Camera Co. to be practical for even the smallest studio.

Other animation stands are also available from \$1250.00 and up.

HOLLYWOOD CAMERA CO. FEATURES A HUGE STOCK OF CAMERAS, ACCESSORIES, LIGHTS AND PROCESSING EQUIPMENT FOR THE PROFESSIONAL CINEMATOGRAPHER. WRITE FOR YOUR COPY OF OUR LATEST CATALOG.



Some materials are
from former U.S.
Gov't stocks.
Equipment not listed
as new or
one-of-a-kind is used.
All prices F.O.B. our
warehouse.

HOLLYWOOD CAMERA CO.

All equipment is guaranteed to be as shown.
Check with order.
Please allow 25% discount on
quantity purchase.
Orders shipped from
our latest stock.
Minimum order \$1.00.

MITCHELL CAMERAS

COMPLETE 35mm HI-SPEED OUTFIT

Based on the proven design of the Mitchell "Standard," the Hi-Speed operates at speeds from 1 to 125 frames per second. Perfect results are obtained at all intermediate speeds. Unequalled for slow motion photography. Design is identical to the "Standard," except that ball bearings and only high quality metal gears are used.

\$1975⁰⁰

head only

With 4 lenses, mattebox, viewfinder, motor, two 400 ft. magazines, two 1000 ft. magazines, and set of carrying cases. List Value \$8150.00! Our price, only \$2950.00.



MITCHELL CAMERAS

MITCHELL Single Lens Camera,
head and motor. \$1295.00

MITCHELL SINGLE SYSTEM with RCA galvanometer and complete RCA sound recording system. Reconditioned and guaranteed equal to new. 3950.00

MITCHELL STANDARD with 6 lenses, mattebox, viewfinder, motor, four 1000 ft. magazines and set of carrying cases. List \$8650.00 SPECIAL \$2995.00



MITCHELL ACCESSORIES

1" 12.3 Bausch & Lomb Bellor	130.00
2" 12.3 Bausch & Lomb Bellor	135.00
3" 12.3 Bausch & Lomb Bellor	140.00
4" 12.3 Bausch & Lomb Bellor	190.00
16mm MAGAZINES—400 ft. capacity	89.00
35mm MAGAZINES—400 ft. capacity	59.95
35mm MAGAZINES—1000 ft. capacity	99.50
35mm MAGAZINES—2000 ft. capacity	169.50
35mm TRIPOD LEGS, Standard, new	139.50
35mm TRIPOD LEGS, Standard, used	99.50
35mm TRIPOD LEGS, Baby, new	55.00
35mm TRIPOD LEGS, Baby, used	38.50
FRICTION HEAD, Standard	295.00
WOBBLER GEARED HEAD—New	1450.00
STANDARD FINDER with insert mathe	179.50
STANDARD FINDER with adjustable mathe	225.00
MOTOR—110 volt, "wild"	395.00

MOTOR—12 volt d.c. with tachometer	295.00
MOTOR—24 volt d.c. with tachometer	295.00
MOTOR—110 volt synch.	
for 16mm camera	297.50
BNC INTERLOCK MOTOR—110 or 220 volt	195.00
SINGLE SYSTEM MOTOR—12 or 24 volt d.c.	285.00
FILTER HOLDERS—12, with case New	17.00
BNC SILSYN remote follow-focus control	275.00
VARIABLE DIFFUSER, New	110.00

RABY STUDIO BLIMP

For Mitchell "NC", "Standard" or "Hi-Speed" cameras with motor. Spring-actuated, counter-balanced. Follow focus control. Built-in megaflex and pilot light.

LIST PRICE

IS

\$1500.00!

SPECIAL

\$395⁰⁰

All equipment is guaranteed to be in top serviceable condition. No worn out "studio antiques" are ever offered by Hollywood.

HOLLYWOOD CAMERA CO.



CINEMATOGRAPHER Burnett Guffey (left) explains eye levels and before giving the "okay" signal to his camera crew waiting to shoot

scenes for Allied Artists' "Hell to Eternity" on location in Okinawa. Here, constantly changing light was a problem.

Multiple Cameras Cut Shooting Time Of "Hell To Eternity"

Burnett Guffey, ASC, used two or more cameras to record principal action scenes for story of Saipan invasion, filmed in Okinawa.

By GEORGE J. MITCHELL

Editor, *WASHYR/20 Days, Okinawa*

WHEN I LEARNED THAT Allied Artists intended to shoot most of "Hell to Eternity" on Okinawa, I decided to photograph a personal documentary film of the company and the Marines at work, using my 16mm equipment. It struck me that "behind-the-camera" activity would provide interesting material for an amateur film. Producer Irving H. Levin was kind enough to allow me to photograph the unit at work during the 30 days spent on Ok-

nawa. The result of my labors is an 800-foot Kodachrome film with magnetic sound showing the participation of some of the most impressive battle scenes ever put on film.

"Hell to Eternity," produced by Irving H. Levin, is the true story of Marine Sergeant Gay Cabaldon who persuaded over 1,000 Japanese soldiers to surrender during the battle for Saipan in 1944. Producer Levin assembled an outstanding cast to tell Cabaldon's

story. Jeffrey Hunter, rising young star, was selected to play Cabaldon. Old time silent star Sessue Hayakawa portrays Lt. Gen. Matsu, commander of the Japanese forces on Saipan. His wife, Tsuna Aoki, making her first American film in 35 years, plays Cabaldon's Japanese foster mother. Mrs. Hayakawa was also an important Hollywood star of the silent era whose popularity rivaled her famous husband's. Also prominent in the cast are Vic Darnley,

David Jannet, Joan O'Brien, Milko Taka, Richard Eyer, John Laitch, Bill Williams, Richard Gardner and Nicky Blair.

To direct the photography, Levin chose Burnett Guffey, ASC, who won an Academy Award in 1954 for the photography of the similarly-titled "From Here To Eternity."

The first scenes photographed on the Okinawa location were made at the Army's Ishikawa Recreation Beach, addressed to serve as a camp in Hawaii. But after two days of near perfect weather, the company moved to Kin-waki beach to film the massive amphibious invasion scenes.

One afternoon at Kin-waki I watched Director of Photography Guffey preparing to photograph Marines storming ashore from landing craft and capturing the Japanese defenders in fierce fighting. It was a difficult and complicated scene to make. Great care had to be taken to make certain that the explosive charges, flame throwers and mechanical devices used to produce the simulated artillery fire were set off on proper cue. Guffey had carefully lined up three Mitchell NC cameras at strategic points to catch the action from several different angles. One camera was placed on the beach and two others were located inside a large amphibious tractor. The front ramp of the amphib was lowered so these cameras could effectively cover the set.

The cameras were ready. Guffey and his crew waited patiently for the Marine explosive experts, working in conjunction with the film company's special effects team, to complete their work. Suddenly and with unpredictable swiftness, heavy tides came in from the Philippine Sea and almost washed away one of the cameras. Waves dashed against the sides of the amphibious tractor, swallowing partially in the surf, and drenched the two cameras and their crews inside. All of the camera positions had to be moved.

"That's the story of my life," Guffey said to me when I remarked on his bad luck. "We had a good set-up but in this business you have to be ready for the unexpected."

It was late afternoon and the sunlight was fading but Time was of the essence. It would have been expensive and time consuming to postpone the scene until the following day.

But Burnett Guffey has been dealing with similar crises during the movie

Continued On Next Page



ON RUGGED ISLAND location, a single camera is used to film Japanese surrender scene. Behind Mitchell camera is operator Andy McIntyre and assistant Jack Devaux.



FOR LEFT, mounted on truck served as unobscured camera stand. Note Pan-Cinetone lens used on camera at right. One is shooting by white cinematographer Guffey and director Kerlan (right) script.

TWO MITCHELL cameras are used to simultaneously film close-up and medium shot of dramatic battle scene for "Hell to Eternity."





BECAUSE SON played hide-and-seek almost constantly on the Okinawa location, cinematographer Russell Gaffey maintained a vigilant check on light objectives, using a Harvard accident light meter.

years he has been behind motion picture cameras. Within minutes he quickly, skillfully and with authority born of years of experience, selected new setups, lined up each camera for composition, checked lighting and exposure and was ready to roll when Director Karlson called for "Action!"

In front of Gaffey's cameras, the Marines slowly waded ashore amidst tremendous artillery explosions and the chatter of machine guns and crack of rifles. For many of us on the sidelines who were combat veterans of World War II and the Korean War, it was a bit too realistic for comfort. Karlson was calmly directing the make-believe carnage from the turret of an armored amphibious tractor in much the same manner as a combat commander. When he finally said "Print that one!", the man had almost disappeared behind the nearby Ishikawa mountains. At Assistant Director Clark Polow's command, "dead" Marines and Japanese soldiers slowly rose from the beach in the eerie light of the gathering dusk. Gaffey tilted back his ten-gallon cowboy hat and smiled, satisfied. Another important scene was "in the can."

When I visited the set the next day, the beach looked as if a real invasion had taken place. Shell holes, shattered

palma logs, bits of barbed wire and pieces of military equipment were littered about. Hundreds of Marines together with their heavy trucks, tanks and equipment milled around. In the middle of this apparent confusion Gaffey was calmly making ready for the next series of scenes. There were to show the Marines slowly advancing over the beach against bitter Japanese resistance capturing a series of pill boxes located on the bluff. It was to take Director Karlson's film unit nearly three days to achieve this objective—possibly longer than it had taken the Marines in the real-life battle of Saipan. But, of course, although the results looked as realistic as the actuality, it was much safer for everyone concerned.

To photograph these scenes with more dramatic effectiveness, Gaffey employed multiple cameras. As many as three Mitchells were sometimes used to photograph different fields of action simultaneously in the same scene. For example two cameras, each employing different focal length lenses, would cover the advancing Marines as they crawled across the fire-swept beach, using shell holes and debris for cover. A third camera, mounting either a telephoto or a Son Berthiot "zoom" lens, would be trained on the objective

the Marines were attacking. This technique enabled Director Karlson to secure a number of various angles of the same scene in one continuous take. Moreover, it created a greater sense of realism.

In addition to the three Mitchell NC cameras, a 35mm Arriflex was frequently employed as a hand camera to capture close-in "cigarettes" and subsequently photograph bits of action. Sun reflectors plus 10K and 20K incandescent lamps augmented the sometimes dimmer Okinawa sun, which often frustrated the camera crew by alternating from extremely bright to very dull. But as a general rule, the weather was excellent—almost made to order for the daily call sheets.

All of the camera equipment was brought from Hollywood. This included three Mitchell NC cameras and one Arriflex. Barreys were mainly used for camera silencing; however, a Ricky Bling was on hand and used when camera noise had to be kept at a minimum. Although some grip equipment was shipped out from Hollywood, "Chuck" Hannwald and his grips made most of their equipment after the company reached Okinawa. Lighting equipment was rented from Japan, but Gaffer Dave Costa brought along his own diffusers. The Marines furnished and

Continued On Page 424



USING A BOHEMIA R16 camera with full complement of lenses, the editor photographed much of the action scenes from behind or alongside the two Mitchell cameras for a personal documentary film of a movie company in action on location.

BEHIND THE SCENES...



You'll find CHARLES ROSS!

There's a lot that goes on behind the scenes that never shows on the screen . . . important things, that require the very best in equipment. That's why producers who "get things done" call Charles Ross . . . They choose from one of the largest inventories of lighting and grip equipment in the east — anything from a sleek, powerful DC Generator Truck to a Baby Spot. There's service too! The kind of service that, within minutes after your order is received, has the equipment on its way to your location. You'll find it's great doing business with Charles Ross.

RENTALS SALES SERVICE

Send for a schedule of rental rates



LIGHTS



GRIP EQUIPMENT



PROPS

GENERATOR TRUCKS

1200 - 1500 - 1800 - 2000 - 2500 - 3000 - 3500 - 4000 - 4500 - 5000 - 5500 - 6000 - 6500 - 7000 - 7500 - 8000 - 8500 - 9000 - 9500 - 10000 - 11000 - 12000 - 13000 - 14000 - 15000 - 16000 - 17000 - 18000 - 19000 - 20000 - 21000 - 22000 - 23000 - 24000 - 25000 - 26000 - 27000 - 28000 - 29000 - 30000 - 31000 - 32000 - 33000 - 34000 - 35000 - 36000 - 37000 - 38000 - 39000 - 40000 - 41000 - 42000 - 43000 - 44000 - 45000 - 46000 - 47000 - 48000 - 49000 - 50000 - 51000 - 52000 - 53000 - 54000 - 55000 - 56000 - 57000 - 58000 - 59000 - 60000 - 61000 - 62000 - 63000 - 64000 - 65000 - 66000 - 67000 - 68000 - 69000 - 70000 - 71000 - 72000 - 73000 - 74000 - 75000 - 76000 - 77000 - 78000 - 79000 - 80000 - 81000 - 82000 - 83000 - 84000 - 85000 - 86000 - 87000 - 88000 - 89000 - 90000 - 91000 - 92000 - 93000 - 94000 - 95000 - 96000 - 97000 - 98000 - 99000 - 100000 - 101000 - 102000 - 103000 - 104000 - 105000 - 106000 - 107000 - 108000 - 109000 - 110000 - 111000 - 112000 - 113000 - 114000 - 115000 - 116000 - 117000 - 118000 - 119000 - 120000 - 121000 - 122000 - 123000 - 124000 - 125000 - 126000 - 127000 - 128000 - 129000 - 130000 - 131000 - 132000 - 133000 - 134000 - 135000 - 136000 - 137000 - 138000 - 139000 - 140000 - 141000 - 142000 - 143000 - 144000 - 145000 - 146000 - 147000 - 148000 - 149000 - 150000 - 151000 - 152000 - 153000 - 154000 - 155000 - 156000 - 157000 - 158000 - 159000 - 160000 - 161000 - 162000 - 163000 - 164000 - 165000 - 166000 - 167000 - 168000 - 169000 - 170000 - 171000 - 172000 - 173000 - 174000 - 175000 - 176000 - 177000 - 178000 - 179000 - 180000 - 181000 - 182000 - 183000 - 184000 - 185000 - 186000 - 187000 - 188000 - 189000 - 190000 - 191000 - 192000 - 193000 - 194000 - 195000 - 196000 - 197000 - 198000 - 199000 - 200000 - 201000 - 202000 - 203000 - 204000 - 205000 - 206000 - 207000 - 208000 - 209000 - 210000 - 211000 - 212000 - 213000 - 214000 - 215000 - 216000 - 217000 - 218000 - 219000 - 220000 - 221000 - 222000 - 223000 - 224000 - 225000 - 226000 - 227000 - 228000 - 229000 - 230000 - 231000 - 232000 - 233000 - 234000 - 235000 - 236000 - 237000 - 238000 - 239000 - 240000 - 241000 - 242000 - 243000 - 244000 - 245000 - 246000 - 247000 - 248000 - 249000 - 250000 - 251000 - 252000 - 253000 - 254000 - 255000 - 256000 - 257000 - 258000 - 259000 - 260000 - 261000 - 262000 - 263000 - 264000 - 265000 - 266000 - 267000 - 268000 - 269000 - 270000 - 271000 - 272000 - 273000 - 274000 - 275000 - 276000 - 277000 - 278000 - 279000 - 280000 - 281000 - 282000 - 283000 - 284000 - 285000 - 286000 - 287000 - 288000 - 289000 - 290000 - 291000 - 292000 - 293000 - 294000 - 295000 - 296000 - 297000 - 298000 - 299000 - 300000 - 301000 - 302000 - 303000 - 304000 - 305000 - 306000 - 307000 - 308000 - 309000 - 310000 - 311000 - 312000 - 313000 - 314000 - 315000 - 316000 - 317000 - 318000 - 319000 - 320000 - 321000 - 322000 - 323000 - 324000 - 325000 - 326000 - 327000 - 328000 - 329000 - 330000 - 331000 - 332000 - 333000 - 334000 - 335000 - 336000 - 337000 - 338000 - 339000 - 340000 - 341000 - 342000 - 343000 - 344000 - 345000 - 346000 - 347000 - 348000 - 349000 - 350000 - 351000 - 352000 - 353000 - 354000 - 355000 - 356000 - 357000 - 358000 - 359000 - 360000 - 361000 - 362000 - 363000 - 364000 - 365000 - 366000 - 367000 - 368000 - 369000 - 370000 - 371000 - 372000 - 373000 - 374000 - 375000 - 376000 - 377000 - 378000 - 379000 - 380000 - 381000 - 382000 - 383000 - 384000 - 385000 - 386000 - 387000 - 388000 - 389000 - 390000 - 391000 - 392000 - 393000 - 394000 - 395000 - 396000 - 397000 - 398000 - 399000 - 400000 - 401000 - 402000 - 403000 - 404000 - 405000 - 406000 - 407000 - 408000 - 409000 - 410000 - 411000 - 412000 - 413000 - 414000 - 415000 - 416000 - 417000 - 418000 - 419000 - 420000 - 421000 - 422000 - 423000 - 424000 - 425000 - 426000 - 427000 - 428000 - 429000 - 430000 - 431000 - 432000 - 433000 - 434000 - 435000 - 436000 - 437000 - 438000 - 439000 - 440000 - 441000 - 442000 - 443000 - 444000 - 445000 - 446000 - 447000 - 448000 - 449000 - 450000 - 451000 - 452000 - 453000 - 454000 - 455000 - 456000 - 457000 - 458000 - 459000 - 460000 - 461000 - 462000 - 463000 - 464000 - 465000 - 466000 - 467000 - 468000 - 469000 - 470000 - 471000 - 472000 - 473000 - 474000 - 475000 - 476000 - 477000 - 478000 - 479000 - 480000 - 481000 - 482000 - 483000 - 484000 - 485000 - 486000 - 487000 - 488000 - 489000 - 490000 - 491000 - 492000 - 493000 - 494000 - 495000 - 496000 - 497000 - 498000 - 499000 - 500000 - 501000 - 502000 - 503000 - 504000 - 505000 - 506000 - 507000 - 508000 - 509000 - 510000 - 511000 - 512000 - 513000 - 514000 - 515000 - 516000 - 517000 - 518000 - 519000 - 520000 - 521000 - 522000 - 523000 - 524000 - 525000 - 526000 - 527000 - 528000 - 529000 - 530000 - 531000 - 532000 - 533000 - 534000 - 535000 - 536000 - 537000 - 538000 - 539000 - 540000 - 541000 - 542000 - 543000 - 544000 - 545000 - 546000 - 547000 - 548000 - 549000 - 550000 - 551000 - 552000 - 553000 - 554000 - 555000 - 556000 - 557000 - 558000 - 559000 - 560000 - 561000 - 562000 - 563000 - 564000 - 565000 - 566000 - 567000 - 568000 - 569000 - 570000 - 571000 - 572000 - 573000 - 574000 - 575000 - 576000 - 577000 - 578000 - 579000 - 580000 - 581000 - 582000 - 583000 - 584000 - 585000 - 586000 - 587000 - 588000 - 589000 - 590000 - 591000 - 592000 - 593000 - 594000 - 595000 - 596000 - 597000 - 598000 - 599000 - 600000 - 601000 - 602000 - 603000 - 604000 - 605000 - 606000 - 607000 - 608000 - 609000 - 610000 - 611000 - 612000 - 613000 - 614000 - 615000 - 616000 - 617000 - 618000 - 619000 - 620000 - 621000 - 622000 - 623000 - 624000 - 625000 - 626000 - 627000 - 628000 - 629000 - 630000 - 631000 - 632000 - 633000 - 634000 - 635000 - 636000 - 637000 - 638000 - 639000 - 640000 - 641000 - 642000 - 643000 - 644000 - 645000 - 646000 - 647000 - 648000 - 649000 - 650000 - 651000 - 652000 - 653000 - 654000 - 655000 - 656000 - 657000 - 658000 - 659000 - 660000 - 661000 - 662000 - 663000 - 664000 - 665000 - 666000 - 667000 - 668000 - 669000 - 670000 - 671000 - 672000 - 673000 - 674000 - 675000 - 676000 - 677000 - 678000 - 679000 - 680000 - 681000 - 682000 - 683000 - 684000 - 685000 - 686000 - 687000 - 688000 - 689000 - 690000 - 691000 - 692000 - 693000 - 694000 - 695000 - 696000 - 697000 - 698000 - 699000 - 700000 - 701000 - 702000 - 703000 - 704000 - 705000 - 706000 - 707000 - 708000 - 709000 - 710000 - 711000 - 712000 - 713000 - 714000 - 715000 - 716000 - 717000 - 718000 - 719000 - 720000 - 721000 - 722000 - 723000 - 724000 - 725000 - 726000 - 727000 - 728000 - 729000 - 730000 - 731000 - 732000 - 733000 - 734000 - 735000 - 736000 - 737000 - 738000 - 739000 - 740000 - 741000 - 742000 - 743000 - 744000 - 745000 - 746000 - 747000 - 748000 - 749000 - 750000 - 751000 - 752000 - 753000 - 754000 - 755000 - 756000 - 757000 - 758000 - 759000 - 760000 - 761000 - 762000 - 763000 - 764000 - 765000 - 766000 - 767000 - 768000 - 769000 - 770000 - 771000 - 772000 - 773000 - 774000 - 775000 - 776000 - 777000 - 778000 - 779000 - 780000 - 781000 - 782000 - 783000 - 784000 - 785000 - 786000 - 787000 - 788000 - 789000 - 790000 - 791000 - 792000 - 793000 - 794000 - 795000 - 796000 - 797000 - 798000 - 799000 - 800000 - 801000 - 802000 - 803000 - 804000 - 805000 - 806000 - 807000 - 808000 - 809000 - 810000 - 811000 - 812000 - 813000 - 814000 - 815000 - 816000 - 817000 - 818000 - 819000 - 820000 - 821000 - 822000 - 823000 - 824000 - 825000 - 826000 - 827000 - 828000 - 829000 - 830000 - 831000 - 832000 - 833000 - 834000 - 835000 - 836000 - 837000 - 838000 - 839000 - 840000 - 841000 - 842000 - 843000 - 844000 - 845000 - 846000 - 847000 - 848000 - 849000 - 850000 - 851000 - 852000 - 853000 - 854000 - 855000 - 856000 - 857000 - 858000 - 859000 - 860000 - 861000 - 862000 - 863000 - 864000 - 865000 - 866000 - 867000 - 868000 - 869000 - 870000 - 871000 - 872000 - 873000 - 874000 - 875000 - 876000 - 877000 - 878000 - 879000 - 880000 - 881000 - 882000 - 883000 - 884000 - 885000 - 886000 - 887000 - 888000 - 889000 - 890000 - 891000 - 892000 - 893000 - 894000 - 895000 - 896000 - 897000 - 898000 - 899000 - 900000 - 901000 - 902000 - 903000 - 904000 - 905000 - 906000 - 907000 - 908000 - 909000 - 910000 - 911000 - 912000 - 913000 - 914000 - 915000 - 916000 - 917000 - 918000 - 919000 - 920000 - 921000 - 922000 - 923000 - 924000 - 925000 - 926000 - 927000 - 928000 - 929000 - 930000 - 931000 - 932000 - 933000 - 934000 - 935000 - 936000 - 937000 - 938000 - 939000 - 940000 - 941000 - 942000 - 943000 - 944000 - 945000 - 946000 - 947000 - 948000 - 949000 - 950000 - 951000 - 952000 - 953000 - 954000 - 955000 - 956000 - 957000 - 958000 - 959000 - 960000 - 961000 - 962000 - 963000 - 964000 - 965000 - 966000 - 967000 - 968000 - 969000 - 970000 - 971000 - 972000 - 973000 - 974000 - 975000 - 976000 - 977000 - 978000 - 979000 - 980000 - 981000 - 982000 - 983000 - 984000 - 985000 - 986000 - 987000 - 988000 - 989000 - 990000 - 991000 - 992000 - 993000 - 994000 - 995000 - 996000 - 997000 - 998000 - 999000 - 1000000 - 1001000 - 1002000 - 1003000 - 1004000 - 1005000 - 1006000 - 1007000 - 1008000 - 1009000 - 1010000 - 1011000 - 1012000 - 1013000 - 1014000 - 1015000 - 1016000 - 1017000 - 1018000 - 1019000 - 1020000 - 1021000 - 1022000 - 1023000 - 1024000 - 1025000 - 1026000 - 1027000 - 1028000 - 1029000 - 1030000 - 1031000 - 1032000 - 1033000 - 1034000 - 1035000 - 1036000 - 1037000 - 1038000 - 1039000 - 1040000 - 1041000 - 1042000 - 1043000 - 1044000 - 1045000 - 1046000 - 1047000 - 1048000 - 1049000 - 1050000 - 1051000 - 1052000 - 1053000 - 1054000 - 1055000 - 1056000 - 1057000 - 1058000 - 1059000 - 1060000 - 1061000 - 1062000 - 1063000 - 1064000 - 1065000 - 1066000 - 1067000 - 1068000 - 1069000 - 1070000 - 1071000 - 1072000 - 1073000 - 1074000 - 1075000 - 1076000 - 1077000 - 1078000 - 1079000 - 1080000 - 1081000 - 1082000 - 1083000 - 1084000 - 1085000 - 1086000 - 1087000 - 1088000 - 1089000 - 1090000 - 1091000 - 1092000 - 1093000 - 1094000 - 1095000 - 1096000 - 1097000 - 1098000 - 1099000 - 1100000 - 1101000 - 1102000 - 1103000 - 1104000 - 1105000 - 1106000 - 1107000 - 1108000 - 1109000 - 1110000 - 1111000 - 1112000 - 1113000 - 1114000 - 1115000 - 1116000 - 1117000 - 1118000 - 1119000 - 1120000 - 1121000 - 1122000 - 1123000 - 1124000 - 1125000 - 1126000 - 1127000 - 1128000 - 1129000 - 1130000 - 1131000 - 1132000 - 1133000 - 1134000 - 1135000 - 1136000 - 1137000 - 1138000 - 1139000 - 1140000 - 1141000 - 1142000 - 1143000 - 1144000 - 1145000 - 1146000 - 1147000 - 1148000 - 1149000 - 1150000 - 1151000 - 1152000 - 1153000 - 1154000 - 1155000 - 1156000 - 1157000 - 1158000 - 1159000 - 1160000 - 1161000 - 1162000 - 1163000 - 1164000 - 1165000 - 1166000 - 1167000 - 1168000 - 1169000 - 1170000 - 1171000 - 1172000 - 1173000 - 1174000 - 1175000 - 1176000 - 1177000 - 1178000 - 1179000 - 1180000 - 1181000 - 1182000 - 1183000 - 1184000 - 1185000 - 1186000 - 1187000 - 1188000 - 1189000 - 1190000 - 1191000 - 1192000 - 1193000 - 1194000 - 1195000 - 1196000 - 1197000 - 1198000 - 1199000 - 1200000 - 1201000 - 1202000 - 1203000 - 1204000 - 1205000 - 1206000 - 1207000 - 1208000 - 1209000 - 1210000 - 1211000 - 1212000 - 1213000 - 1214000 - 1215000 - 1216000 - 1217000 - 1218000 - 1219000 - 1220000 - 1221000 - 1222000 - 1223000 - 1224000 - 1225000 - 1226000 - 1227000 - 1228000 - 1229000 - 1230000 - 1231000 - 1232000 - 1233000 - 1234000 - 1235000 - 1236000 - 1237000 - 1238000 - 1239000 - 1240000 - 1241000 - 1242000 - 1243000 - 1244000 - 1245000 - 1246000 - 1247000 - 1248000 - 1249000 - 1250000 - 1251000 - 1252000 - 1253000 - 1254000 - 1255000 - 1256000 - 1257000 - 1258000 - 1259000 - 1260000 - 1261000 - 1262000 - 1263000 - 1264000 - 1265000 - 1266000 - 1267000 - 1268000 - 1269000 - 1270000 - 1271000 - 1272000 - 1273000 - 1274000 - 1275000 - 1276000 - 1277000 - 1278000 - 1279000 - 1280000 - 1281000 - 1282000 - 1283000 - 1284000 - 1285000 - 1286000 - 1287000 - 1288000 - 1289000 - 1290000 - 1291000 - 1292000 - 1293000 - 1294000 - 1295000 - 1296000 - 1297000 - 1298000 - 1299000 - 1300000 - 1301000 - 1302000 - 1303000 - 1304000 - 1305000 - 1306000 - 1307000 - 1308000 - 1309000 - 1310000 - 1311000 - 1312000 - 1313000 - 1314000 - 1315000 - 1316000 - 1317000 - 1318000 - 1319000 - 1320000 - 1321000 - 1322000 - 1323000 - 1324000 - 1325000 - 1326000 - 1327000 - 1328000 - 1329000 - 1330000 - 1331000 - 1332000 - 1333000 - 1334000 - 1335000 - 1336000 - 1337000 - 1338000 - 1339000 - 1340000 - 1341000 - 1342000 - 1343000 - 1344000 - 1345000 - 1346000 - 1347000 - 1348000 - 1349000 - 1350000 - 1351000 - 1352000 - 1353000 - 1354000 - 1355000 - 1356000 - 1357000 - 1358000 - 1359000 - 1360000 - 1361000 - 1362000 - 1363000 - 1364000 - 1365000 - 1366000 - 1367000 - 1368000 - 1369000 - 1370000 - 1371000 - 1372000 - 1373000 - 1374000 - 1375000 - 1376000 - 1377000 - 1378000 - 1379000 - 1380000 - 1381000 - 1382000 - 1383000 - 1384000 - 1385000 - 1386000 - 1387000 - 1388000 - 1389000 - 1390000 - 1391000 - 1392000 - 1393000 - 1394000 - 1395000 - 1396000 - 1397000 - 1398000 - 1399000 - 1400000 - 1401000 - 1402000 - 1403000 - 1404000 - 1405000 - 1406000 - 1407000 - 1



IRCAVIR FLAME COLOR is a vital factor in motion pictures of jet craft takeoffs, missile takeoffs, etc. The new ER color film is ideally suited for producing pictures where all colors in scene must register with maximum fidelity.

New, Fast Color Films Meet Jet-Age Needs

Recently-introduced Ektachrome Reversal film designed for quality color results with low-level illumination.

By **DR. NORWOOD SIMMONS**

Western Division Manager, Motion Picture Film Department, Eastman Kodak Company, Hollywood, Calif.

TWO NEW HIGH-SPEED color films now available from Eastman Kodak Company are adding a new dimension of usefulness to motion pictures in the vital fields of industrial testing and experimentation—particularly in the production of rockets, intercontinental ballistic missiles, and jet and turbojet aircraft.

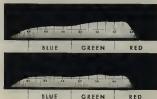
Among cinematographers, these camera films are referred to simply as "ER"—for Ektachrome Reversal. These are two—Daylight and Type B—and both are available in 70mm, 35mm and 16mm widths. A third and companion film is Ektachrome Reversal Print Film Type 5386, which takes the same developing process as the camera film, and may be used for rapid production of prints from camera originals.

While general commercial use of these films is unlikely, except perhaps for reversed color photography, the ER

films do promise a major breakthrough for research, scientific and record purposes. Color definition has proved to be highly reliable—a vital factor in research motion picture photography of rockets, missiles, and plane testing.

For instance, in motion picture studies of rockets, jets, and missile takeoffs, the flame color is of vital significance. Tests show that ER film can record a high-flying missile or jet against blue sky with exceptional clarity, whereas the same objects would be difficult to spot when shot with black-and-white film.

Both in 16mm and 35mm, Ektachrome ER color film is easy to use, requiring no supplementary lighting for in-plant movies. Ordinary operating lights give entirely satis-



CHARTS SHOW sensitivity characteristics of Eastman Ektachrome ER film, daylight type (top) and tungsten type (bottom).

factory results with the Indicon type film. This means that in-plant movies for reports, records, or employee training purposes can be made under actual working conditions.

Ektachrome ER film, Type 5257 (35mm) and Type 7257 (16mm), is designed for use under daylight conditions. It is intended for situations where the light level is very low or for high-speed photography applications when sufficient exposure cannot be obtained with slower speed color reversal film.

For daylight, the exposure index is 160. With a shutter speed of about 1/50 of a second (24 frames per second) the basic exposure is 14 foot-candles at f/1.4.

Ektachrome ER film, Type 5258 (35mm) and Type 7258 (16mm), is a high-speed camera material for use under difficult tungsten lighting conditions, where sufficient exposure cannot be obtained with slower speed color reversal film. It can be used to make in-plant movies without supplementary lighting. The new film also finds important application in photography of night-time sporting events and for newsmen or television purposes.

Under tungsten light, the exposure index of the film is 125 and is equivalent to 18 foot-candles—f/1.4 at 1/50th of a second. Under daylight conditions, with a Kodak Wratten 85B filter over the lens, the exposure index is 80.

The effective speeds of both films can be doubled by increasing the time of development in the first developer. The gain in speed is accompanied by a slight loss in maximum density and latitude and a slight increase in graininess.

Continued On Page 442



CRIP, slightly enlarged, of 16mm film processed for TV newsmen by the FSZOL reversal method.

THE "FSZOL PROCESS"

A two-solution, 27-minute reversal process for 16mm television films.

By ARTHUR L. FSZOL

Film Branch, KIVA-TV, Yuma, Arizona

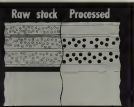
THAT OLD BRIDGE—"Necessity is the mother of invention"—is just as true today as when those words first were written. Indeed, in the Armed Forces, we were constantly confronted with inventive opportunities, which, in the vernacular of the Army, were known as "field expedients." We did not know at the time that such experiences would stand us in good stead later in civilian life.

As a combination film director, cameraman, producer, etc., at station KIVA-TV, Yuma, Arizona, I've encountered some hectic moments in the course of getting film processed and put on the air. A limited budget for our photographic department coupled with a minimum of time available for darkroom duties, led to working out what I have come to call the "FSZOL Process"—a two-solution method of processing 16mm reversal film with optical sound in 27 minutes or less.

This short-cut method of processing is not offered as a substitute for professional processing; it does not and cannot match in quality the results obtained with costly processing machinery and the professional film developing standards that have been established in the industry. But it does give satisfactory results for TV news film and commercials, and it is ideally suited to the requirements of the small TV station cameraman or film producer, or the field engineer with limited equipment, budget and time.

Prior to introducing this process, we found that electronic polarity reversal of negative film for TV news films had never proved successful. Also, putting our films through a complete reversal process, using portable

Continued On Page 444



CROSS-SECTION DIAGRAM of raw stock (left) and processed stock (right) of the new Kodak Ektachrome Reversal color film.

Everywhere in the world... because it's on film!

Yes, film is everywhere—everywhere there are people! And because it is everywhere, and so many millions see it, making it right in technic is both a privilege and a responsibility. That, in brief, is the philosophy of the Eastman Technical Service for Motion Picture Film—a service highly regarded by all who call upon it.

Branches are located at strategic centers. Inquiries invited.

Motion Picture Film Department
EASTMAN KODAK COMPANY
Rochester 4, N.Y.

East Coast Division
342 Madison Avenue
New York 17, N.Y.

Midwest Division
130 East Randolph Street
Chicago 1, Ill.

West Coast Division
6708 Santa Monica Blvd.
Hollywood 38, Calif.

For the purchase of film
W. J. German, Inc.

Agents for the sale and distribution of Eastman Professional
Motion Picture Films, Fair Lee, N.J.; Chicago, Ill.; Hollywood, Calif.







SACRILEGIAL ALTAR is typical of the many massive sets constructed by 20th Century-Fox for "The Story Of Ruth."



QUARRY SET, originally built as an outdoor set, was topped over and illuminated with set lamps for better lighting control.

Filming "The Story Of Ruth"

In lighting and photographing this biblical story in CinemaScope and color, cinematographer Arthur Arling borrowed ideas for pictorial composition from the canvases of old master painters.

By DARRIN SCOT

"THE STORY OF RUTH," produced by 20th Century-Fox in CinemaScope and Eastman Color, is a biblical film which does not boast a chariot race, a sea battle or a bacchanalian orgy. It is, despite its lavish scope, an essentially intimate, highly dramatic story of human passions—love, faith, greed, jealousy and fear. In photographing this visually handsome production, Director of Photography Arthur Arling, ASC, skillfully used light and camera to create heightened dramatic values for the enhancement of the film's powerful themes.

The period of the story—roughly 1250 B.C.—had never before been pictured on the screen. From the photographic standpoint, a great challenge was presented by the fact the story explores two entirely different facets of life in that era. The initial phase of the action takes place in Moab, a rich and powerful kingdom where Ruth grows up to become a prostitute prostitute in the service of the blood-thirsty god Chemosh. The Moabite settings and

costumes are most ornate, and Arling employed a lush style of photography to point up their lavish character.

The second phase of the story unfolds in Judah—at that time an impoverished, agrarian nation whence Ruth Bens is filled devotion to her mother-in-law, Naomi. In sharp contrast to the elaborate Moab sequences the settings, costumes and photography of the Judah scenes concentrate on a simplicity that is handled most effectively.

Arling was assigned to the production while the search was going on to find an actress to portray the title role. He shot many tests of various actresses, none of whom seemed to have precisely the qualities to personify Ruth. Finally he filmed a test of a strikingly beautiful young Israeli actress, Elena Eden, who had to learn her dialogue phonetically because she did not speak English. Arling, who has filmed the "Who's Who of Clamerville" during his many years in the industry, found Miss Eden to be "the most photogenic—the most camera-proof face I've ever

photographed." Needless to say, she got the role.

Norman Corwin's script generally follows the familiar lines of the much-loved Bible story of Ruth, filling in many details only suggested in the rather sparse Biblical narrative. Ruth is first seen as a five-year old child sold to the priests of Moab by her father in order that he might feed his other children. She grows up as a beautifully-trained maid in the gilded cage of the Temple where she is trained as a priestess in the rites of Chemosh. The king smiles with favor upon her, desiring her as his consort, and her future seems secured. However, the moon and falls in love with a young Judean gold artisan, a man of great physical strength but gentle disposition who tells her of the just and compassionate god of Israel.

Her faith in her own blood-hungry deity is so shaken that when, atop the pyramidal in the Square of Chemosh, she is asked to officiate at the sacrifice of a living child, she refuses to do so and flees in horror. In penalty for destroying the faith of a Moabite priestess, her lover is sentenced to a life of hard labor in the royal quarry. She helps him escape, and he is critically wounded. Ruth marries him just before he dies and she then elicits to go to Judea with her mother-in-law. There she is shunned and abused as a foreigner until, having proved herself true, she is accepted in the community and marries Boaz, starting a line of genealogy which ultimately produces King David and Jesus Christ.

Photographing the Moabite sequences offered several imposing challenges. The magnificent sets by Lyle Wheeler (holder of 29 Academy Award nominations and four Oscars) and Fausto Barchetti (Academy nomination for "Journey to the Center of the Earth") were richly decorated with gold leaf, a material difficult to photograph realistically because it tends to go dull and change color. Arling lighted these sets so that the gold glittered and glowed, leading the sets the air of richness they demanded. He was similarly successful in giving full pictorial value to the elaborate costumes of priestesses and officials—designed by distinguished Italian costumeur Nino Novarese in the "snake" colors of black, bright hard green, white and gold.

The Sacramentum interior set of the Moabite Temple, built on the studio's Stage 10, was so skilfully designed that, by means of a variation of wall walls and partitions, repainting, re-decorating and re-hanging of furnishings, it was progressively converted into eight other sets: the Moab king's quarters, High Priest Hedek's apartment, High Priestess Elnah's room, Ruth's quarters, the Temple child's schoolroom, the novice priestesses' courtyard, the sacrificial child's room and the Bethelham Council of Elders' Tribunal. Arling varied his lighting and camera angles so ingenuitively that the multiple use of the basic studio set resulted in a tremendous production economy while at the same time conveyed an impression of sumptuous production value.

One of the most effective sets in the picture is the exterior of the Moab Temple, a beautiful multi-columned, gracefully proportioned structure built on the studio backlot waterways and reflected in the clear streams. It is lavishly landscaped. In the gardens are practical fountains spouting jets of sparkling water; gold-leafed decorations, and numerous statues. Two chaste and right love sequences involving Ruth and the Judean were staged in this garden. To satisfy the projection requirements of drive-in theatres, these sequences were photographed day-

for-night—always a challenge to the cinematographer.

Arling facilitated shooting by tarping in the foreground area in which the action played. By thus screening off the harsh direct sunlight, the players were not blinded by glare, and the light remained constant on them throughout a long shooting day. To light the players it was necessary to use heavy "brute" arcs to maintain the night backgrounds. Balancing this artificial light with natural light was a tricky undertaking. Arling placed the key light behind the players and delicately rim-lighted them so that the final result (aided by a light blue filter over the lens) is one of soft moonlight, made more ethereal by the magic of the love scene.

The sacrifice of the child takes place in the Plaza of Chemosh, a large exterior set dominated by a 22-foot statue of the Moab idol mounted on a pyramidal base 24 feet in height.

Because of the 24 foot elevation of the pyramid base, Arling filmed the sequence from a large crane, which permitted shooting at the same level as that of the action taking place. This eliminated the need to erect and move about heavy and cumbersome platforms, and permitted the sequence to be filmed with a great economy of time.

The most difficult sequences in the picture, from the photographic standpoint, were those shot on the quarry set. The initial problem arose out of the fact that the scenes had to match in light quality and color tone a breath-taking establishing shot of hundreds of slaves toiling in a quarry photographed earlier on location in Africa. The second problem was the set itself, a formidable piece of plaster construction in the form of a steep canyon about

Continued On Page 428



DIRECTOR OF Photography Arthur Arling, ASC, (left) beside 70th Century-Fox Commemorative camera while technicians make scene changes required for next take in the studio backlot set.



ACTUAL INDUSTRY locales are used for staging scenes for Chesterfield Cigarettes' "Men of America" TV commercial film series. Use of light-weight cameras and portable lighting equipment saves time and eliminates interference with factory's production routine.

THE USE OF PORTABLE equipment and fast film to obtain on-the-job testimonials inside plant locations has played a leading role in the production of one of television's most successful advertising campaigns.

Chesterfield Cigarettes' "Men of America" TV commercials, already accredited as one of television's most successful campaigns, includes "Men of America" themes taken from basic industries. It calls for real people—not actors—pausing after completion of a specific phase of their work in order to take "Big Pleasure When and Where They Can."

To obtain this reality, camera crews have roamed from missile launching sites to Boston Police Headquarters, U.S. Navy Destroyers, western ranches and eastern skyscraper locales. In addition, today's high-speed films and portable equipment have made it possible for the producers of the series to achieve a "documentary" effect at a minimum cost, in a minimum amount of time, with a small crew and few added lights.

Two prominent industries—power and automotive—were among the first locations used in this year's series. These two applications called for action camera studies of people at work—a master shot of the plant interior, successive pickups of workers doing various jobs, then a sequence of two or more men stopping for a smoke, a cut-in for closeups of the package, followed by additional cuts to related on-the-spot smoking scenes.

At the huge Westinghouse Steam Turbine Plant in Lester, Pennsylvania, and the main Buick plant at Flint, Michigan, it was particularly important that normal plant activity not be interrupted or delayed.

At the Westinghouse plant, available light is from thirty-foot-high windows and a skylight plus 1000-watt light

Speed Keys Chesterfields' TV Commercial Production

Use of Tri-X negative enables the producer to maintain high standards in photography and at the same time surmount difficult filming conditions economically.

By JOHN FORBES

bulbs about seventy feet above the floor. Also, there was the necessity for catching crucial action on a once-only basis. The manufacturing process for modern steam turbines is spread over a three-year period from drawing board to completion and specific steps could hardly be repeated for the camera.

At the Buick plant there is good normal working light from banks of fluorescent tubes about seven to eight feet above the floor. However, the necessity of covering workers

Continued On Page 444



FRAME SHARPERMENTS from recent "Men of America" TV film commercial photographed in Buick automobile factory in Detroit



for
the
best in

TOP-GRADE MOTION PICTURE EQUIPMENT FROM
THE MAJOR HOLLYWOOD MOTION PICTURE STUDIOS

CALL . . . **BIRNS & SAWYER**



MOVIOLAS 35mm \$250. to \$495.

Complete selection of 35mm
Moviolas in excellent condi-
tion. Most with Optical and
Magnetic sound, picture
head, take-up reel arm,
and counter. Used by edi-
tors who demand the best!

ALSO:

Re winds, synchronizers,
sound readers, gloves,
punches, reels, etc.

MITCHELL CAMERAS

B&S Special
\$3995.
COMPLETE

Mitchell Standard
35mm with 28-40-50
75mm lenses, two each
400' or 1000' mag-
azines, magazine holder,
cans. in "like new"
condition.



Used by the top motion picture
cameramen . . . those who know!



MISCELLANEOUS BARGAINS! AURICONS

Shows Here:
CONVERTED PRO 200
\$890.
MAGAZINE EXTRA

Auricon conversion, year camera	\$195.00
Speed Graphics Perimeter camera	145.00
R & H Magazine, metal, 400', 1000'	from 40.00
F&S Dynas 10" Eyemo mount lens	85.00
F&S K818 K8er lens, 150mm	105.00
Mitchell thirty brand tape	15.00
Mitchell 15mm Movie Box, wide-angle	75.00

MANY MORE TOP NAME,
TOP QUALITY VALUES!

We have a continuing supply of . . .

**HOUSTON—
FEARLESS,
PANORAM & RABY**
Dollies from M.G.M.,
Republic, N.E.C., etc.

Some with Skirts

3 Speed
Control Head
Available at
\$695.00

DOLLY
PRICE, NEW \$249.00
\$695.
LESS
GLASS HEAD



Multi-million-dollar color extravaganzas and many
Oscar winners have been shot with this equipment. All
are in excellent condition and ready to go!



BIRNS & SAWYER

6401 CANTERBURY AVENUE HOLLYWOOD, CALIFORNIA TELEPHONE: HOLLYWOOD 9 5560

CINE EQUIPMENT



USING EXTENSION tube on Bellini camera

Extension Tubes In Cinematography

Coupling the camera lens with an extension tube alters the lens' characteristics. Here's how to calculate proper exposure when using lens extensions.

By JOSEPH HENRY

EXTENSION TUBES are an important adjunct to the lens equipment of the motion picture photographer undertaking filming extremely small objects highly magnified.

The function of extension tubes, which are used in conjunction with the regular camera lens, is not entirely clear to some photographers. Recently a reader asked if, by using a half-inch extension tube with a 1/4-inch lens on his 8mm camera, he could obtain the same picture results as with a 1/4-inch telephoto lens, and also, if use of the tube would reduce the original f /value of his lens.

Here it should be stated that an extension tube coupled with a camera lens does not make it a telephoto. The function of telephoto lenses and extension-tube-coupled lenses are different. Extension tubes permit closeup photography of small objects so that they appear highly magnified on the screen. A telephoto lens on the other hand brings closer, objects in a distant field.

Getting back to the filer's question above, let us first consider the original camera lens he planned to use—the one-inch for an 8mm camera. Why this lens in place of the half-inch lens which is standard for the 8mm camera? Because, said the filer, the original lens did not give the magnification desired. But adding a half-inch extension tube to the one-inch lens would not convert

it to a telephoto, according to the common conception of a telephoto lens. Such a combination would throw the lens out of focus because the distance from lens to film would be increased beyond the focal length of the lens. The f value of the original lens would be destroyed at once. The original f /calculations would no longer be valid because the focal length—imposes certain limitations on all the other specifications. Thus, if sharp focus is to be maintained at all, it can only be done by making compensating alterations to regain a balance of factors.

It would be easy to end the discussion here and simply say, "No, it can't be done." But if one asks, "Can I get a picture with my camera lens extended 1/2-inch using an appropriate extension tube?" the answer can very well be "Yes." Here we get into the elementary law of optics which deals with what is known as conjugate foci. We find that a fixed focus lens of any given focal length can have its object and image reversed—i.e., the size of image and size of object is direct proportion to the distances involved. The most com-

Continued On Page 44

CLOSE-UP DIAPHRAGM CALCULATOR 3 INCH LENS DISTANCE OF LENS TO OBJECT													
OBJECT VALUE		20 in.		30 in.		7 1/2 in.		5 in.		2 in.		1 1/2 in.	
		EFFECTIVE APERTURE											
f	Reverses	f	f	f	f	f	f	f	f	f	f	f	f
2.8	Reverses	3.2	5	6.3	8	10	12.5	16	20	25	32	40	50
4	Reverses	4.5	7.5	10	12.5	16	20	25	32	40	50	63	80
5.6	Reverses	6.3	10	12.5	16	20	25	32	40	50	63	80	100
8	Reverses	9	15	18	22.5	28	36	45	56	70	88	110	140
10	Reverses	11.2	18.8	22.5	28	35	44	55	68	85	106	133	166
16	Reverses	18	30	36	45	56	70	88	110	138	170	213	266
22	Reverses	25.2	42	50	62.5	78	97	121	151	188	235	294	368

IN ULTRA-CLOSEUP photography, the lower f /value is affected by use of extension tubes. Normally there is no apparent change in the lens f /value when the camera is at least ten times the focal length of the lens from the object. But as the camera is subject distance decreases, use of extension tubes reduces the amount of light reaching the film at a given stop as compared to that for same stop for normal photography. A chart such as one above then becomes valuable as a means of determining the effective aperture to use in shooting a small object at very close range.

TOP
TALENT
produces perfect
processing
cfi

cfi

has been serving the film industry for over 40 years as the complete film laboratory. Among the many services offered by CFI are: 16mm, 35mm (and 70mm) color and black and white processing, titles, opticals, slatery reader, and video tape to film transfer for Processing Perfection. Specify CFI!

CONSOLIDATED FILM INDUSTRIES

805 Second Street, Hollywood 28, California
601Yankee 5-1441
122 West 57th Street, New York 19, New York
Circle 4 C-20

These 52 executives have an average of more than 25 years' experience in the film industry and have been with CFI throughout an average of over 10 years:

1) Ray Anderson, 35mm Color Negative Developing Foreman; 2) Ray Bloomman, Negative Assembly Foreman; 3) Lee Bloomberg, 16mm Developing Foreman; 4) Jack Bloomberg, 16mm Positive Foreman; 5) Harry Burdick, 16mm Color Print; 6) George F. Fittman, 35mm Positive Developing Foreman; 7) Richard Cervick, 16mm, Black-and-White Negative Foreman; 8) Bob Sauer, 16mm Positive Foreman; 9) John Canessa, 35mm Color Negative Foreman; 10) Frank Swift, 16mm, 35mm Color, 16mm Positive Service Representative; 11) Jack Sayre, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 12) Ted Fuglestad, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 13) Ted Fuglestad, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 14) Jack Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 15) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 16) Jack Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 17) Jack W. Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 18) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 19) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 20) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 21) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 22) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 23) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 24) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 25) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 26) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 27) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 28) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 29) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 30) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 31) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 32) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 33) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 34) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 35) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 36) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 37) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 38) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 39) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 40) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 41) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 42) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 43) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 44) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 45) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 46) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 47) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 48) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 49) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 50) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 51) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman; 52) Bill Smith, 16mm, 35mm Color, 16mm Negative Assembly Foreman.



Now You Can Add Animation to Your Lowest Budget Films!

Use the TRIPLEX in vertical position for all standard animation techniques in horizontal position for zoom shots, copy and product end puppet stages - or diagram position, columns can be locked at any angle between horizontal and vertical. For impulse scenes in all stages, products, etc. For lineups, stand can be used in all positions. Table can be swung away for large artwork copying. The TRIPLEX stand complete with camera, is also available for rental.

Also available -
Custom Colored, Painted, Acrylic
Cells and Animation Stages



World-Famous Suppliers Of
Professional Movie Equipment
Stocking Thousands Of Items

Triplex The Most Low-priced TRIPLE-DUTY

and Product Stage for All Film Makers & Filmstrip Producers

Prices begin at **\$995**

- More New TRIPLEX Purchasers:
- Maxwell Air Force Base, Ala.
 - University of Virginia
 - University of Kansas
 - Nationwide Insurance Co.
 - H. D. Rose Co.
 - Hercules Powder Co.

And Many Others

F & B... FIRST & BEST

The F & B TRIPLEX is only one of thousands of items which make up F & B's complete stock of professional movie equipment.

New F & B POLE SET

An Easy Way to Hold
Things Up... Anywhere
• Lights • Props
• Backgrounds • Mikers
Without Nails or Screws



\$34⁹⁵ per set consisting of: 2—3-piece poles
7—fittings • 1—110" cross bar

Adjustable from 81 1/2" to 121 1/2"

F & B POLE SET is a featherweight, telescoping aluminum column with an extension spring in the top. Adjust it once to your ceiling height with locking collar. Then just spring it in and out of place as you please. Rubber pads top and bottom protect ceilings and floors - can't be knocked over and takes less floor space than a river delta. A perfect, mobile, lightweight support for lights. Two POLE SETS with cross pole and fitting can be used to hold a roll of background paper, props, ferns, etc. Perfect for location filming.

POLE SET 10 1/2" to 15"... \$38.95

Individual Parts:

- 3 piece Pole
with Cross
Bar to 121 1/2" **\$48.95 ea**
- 3 piece Pole
with Cross
Bar to 15" **\$43.95 ea**
- Drop Bar
(110") with
5 fittings **\$48.95 ea**

MILLER FLUID DRIVE HEAD



The Miller Head is the world's finest precision built hydraulic drive mechanism, and is designed for super smooth panning and tilting. Can be used with any movie camera. F & B is exclusive distributor of the Miller Fluid Heads in the Eastern United States.

Model D (medium duty) . . . \$150.00
Swivel leveling joint . . . \$9.50
Pro Head (heavy duty) . . . 295.00

Replace Worn Leather Movie Belts With

NEW F & B LIFETIME MOVIOLE BELTS

Made of Texturized Seamless Neoprene
Guaranteed to Outlast the Mica
No Hacks • No Staples • Film Friction Grip
Fits All Movie Belts
Price . . . only \$2.00

For Complete Information On Any Item, Write

FLORMAN & BABB, INC.

68 West 45th Street • New York 36, New York • MUrray Hill 2-2928

F & B Selects Your Best
Requests, Name Your Bid... Name Too
Small, Lowest Possible Prices For
Top Quality And Service

Mite-Lite, A Portable Lighting Unit For TV News Filmers

Lighter battery pack, focusing reflector, and use of low-voltage bulb feature this new illumination unit designed for hand-held camera work anywhere.

By FREDERICK FOSTER

ONLY A MAN WHO knows the TV newsman's problems through firsthand experience could understand the need to lighten his equipment load and do something constructive about it. Such is Jack D. Leppert whose newsmen work is currently seen on both NBC and CBS newscasts originating in Los Angeles. Leppert wasn't satisfied with the portable lighting equipment available to him—especially the great weight of the battery pack—so he designed his own. Other newsmen saw it, wanted it. Now he's marketing it—under the trademark of "Mite Lite."

There have been many types and sizes of portable lights offered the news cameraman, Leppert says, but his is completely new in design and embodies a new principle in the light source. It is a smaller unit and therefore lighter in weight. Easier to maintain, too.

The battery unit and reflector weigh but seven pounds



MITE-LITE lamp unit carries its own camera on the Ficus, Eyemo, Arriflex and Bolex. A feature of unit is the great weight reduction in the battery pack (shown suspended on shoulder strap).

The reflector is a type that has been used and favored by veterans still cameramen for years. It has a focusing device that permits the light beam to be altered from flood to spot at any distance from the subject. A special coating applied to the reflector surface, when the unit is used with a clear glass bulb, produces a blue-white light, entirely devoid of the familiar yellow cast that over-voltaged and frosted bulbs produce.

Size of the reflector unit is approximately one-third that of the average portable light, and it does not affect balance of the camera on which it is mounted. Removal of the reflector from camera is a simple, single-motion operation—ideal when shooting time is limited. When mounted on the camera, its compact size still allows the camera to be set down on its back or side, as the cameraman prefers, and it may be left attached to the camera door when the latter is opened for film reloading.

An on-off switch is so positioned in the power line that users of such cameras as Ficus, Eyemo, Arriflex or Bolex can easily switch the light on or off and still steady the camera with the same hand. The cameraman does not have to remove his hand from the camera to actuate the switch, Leppert emphasizes. Shielded cable is used between the reflector unit and the battery pack, thus eliminating troublesome kinking or tangling of the line.

The bulb used in the reflector is a common automobile headlight type and the receptacle in the reflector is so wired that both filaments of the bulb burn simultaneously when the power is switched on. Because the bulb is not subjected to increased voltage, its useful life is said to exceed lamps used in most other portable units. Experi-

Continued On Page 422



THE COMPLETE Mite-Lite equipment: battery pack (left), reflector and lamp attached to camera (center), and the charger unit (right).



SHOOTING scene in interior of Capital Airlines plane, from which seats on this side were entirely removed to accommodate camera.

How Good Lighting Can Enhance The Industrial Film

Full range of set lighting techniques was utilized in photographing "Operation Brotherhood," historic saga of the International Brotherhood of Electrical Workers, filmed in Washington, D.C.

By GLENN JOHNSTON

Harwood Studios, Inc., Wash., D. C.

AN INDUSTRIAL film can have all the production value yet involve just as many camera and lighting problems as the average Hollywood feature film of comparable length. An example is the 27½ minute 16mm color film, "Operation Brotherhood—The IBEW Story," which I recently photographed for the producers, Harwood Studios, Inc., Washington, D.C.

The film is primarily intended to tell the story of the International Brotherhood of Electrical Workers. However, it does more than that; it gives the history and development of electricity itself, from the birth of the Brotherhood in 1891 to the present day.

The heart of the picture is the life of Oley Merson, from his first job as an electrical worker at the age of 21 to his reminiscing, at 85, as he flies in a Viscount Turbo-Prop plane. Since production schedules dictated shooting the scenes out of order, our first problem was "aging" Oley from a fresh-faced 21 to a tired 85.

Our first day's shooting took us on board a Capital Airlines' Viscount. Oley was to be 85 in this sequence and the plane was supposed to be traveling at night. This latter fact precluded using key light through the windows and meant that all lighting must appear to be coming from the general cabin lights and the small overhead reading lamps.

All seats on one entire side of the plane were removed and one 16mm Mitchell with blimp was set up. Since space was at a premium, our lighting units were restricted to 750-W baby spots and clip-on lamps. We used Kodachrome film throughout, which required a light level of at least 500 F.C.

One of the first effects called for was the feel of the plane taking off. Sound effects would help, of course, but something of a visual nature was required. We placed a 5000-W

spot on the hangar floor and aimed it through Oley's window. Then a red gel went into the diffuser slot of the lamp with a black flag set up and designed to rotate. This produced the illusion of red runway lights flashing by.

At this point, we realized that the gradual aging effect for our star player would need careful lighting along with expert make-up. Squinting our eyes and making a mental note wasn't enough, so we made script notes on each scene giving the ratio of fill to key light. At twenty-one, Oley would need very flat lighting—about two-to-one—and, as he aged, a gradual increase to six-or eight-to-one where

Continued On Page 440



ON LOCATION for "Operation Brotherhood—The IBEW Story" behind the Mitchell 16mm camera is Director of Photography Glenn Johnston; at left, Phil Martin, President and Executive Producer of Harwood Studios, Inc., Wash., D. C.

BEST YET!!!

**THE FILM DAILY
1960
YEAR BOOK
OF MOTION PICTURES**

Forty-second Edition

COPIES NOW AVAILABLE

Partial Contents

INDUSTRYWIDE PERSONNEL — PRODUCERS — DISTRIBUTORS —
CIRCUITS AND THE THEATRES THEY OPERATE — PURCHASING
AGENTS — FILM BUYERS — TITLES AND DISTRIBUTORS OF 30,000
FEATURES RELEASED IN THE U.S. SINCE 1915, WITH THE FILM DAILY
REVIEW DATES — DRIVE-INS AND ART THEATRES — STUDIO PER-
SONNEL—EXHIBITOR ORGANIZATIONS—TRADE ASSOCIATIONS—
GUILDS AND UNIONS—PAGES OF NEW INDUSTRY STATISTICS—
EQUIPMENT AND CONCESSION COMPANIES — THE TELEVISION
FIELD—SCORES OF FEATURE ARTICLES COVERING ALL PHASES OF
THE INDUSTRY—POLLS OF PICTURES AND TALENT—FULL CREDITS
OF THE YEAR'S RELEASES—FEATURE IMPORTS—FEATURE CREDITS
OF PRODUCERS, DIRECTORS, PLAYERS, WRITERS, PHOTOGRAPHERS,
ET AL—SHORT SUBJECT DIRECTORS—FOREIGN MARKET COMPLETE
—IMPORTERS & EXPORTERS—AGENTS AND MANAGERS FILM AND
EQUIPMENT BUYERS — LABORATORIES — COLOR PROCESSES —
PLAY AND STORY BROKERS—THEATRE SUPPLY DEALERS—CENSOR
BOARDS AND REGULATIONS—THE PRESS, TRADE, FAN, TECHNICAL,
NON-THEATRICAL AND GENERAL PUBLICATIONS, PUBLICATIONS IN
FOREIGN COUNTRIES, NEW YORK, HOLLYWOOD, AND INTERNA-
TIONAL PRESS CORRESPONDENTS, MOTION PICTURE EDITORS AND
RADIO COMMENTATORS AND 1,001 OTHER FEATURES



Over 1200 pages of vital information

Available Without Extra Charge to All Paid Subscribers to

PUBLICATION OFFICE
1501 Broadway
New York 24, N.Y.

THE FILM DAILY

Established May 8, 1918

The Industry's Oldest Newspaper
Subscription \$15 a Year (Foreign \$20)

West Coast Office:
4423 Hollywood Blvd.
Hollywood 28, Calif.

**Order
Your Copy
Now!**



STROBE EFFECT in wheels of chariots that took part in race in "San Mar" was almost imperceptible because of precocious MGM cameramen took to minutes 2.

When Wheels Turn Backwards

Troublesome strobe effect can be minimized or even avoided in a number of ways.

By ALVIN D. ROE

WHEN SPOKED WHEELS on a moving vehicle or piece of machinery in a scene appear to turn backwards, the effect is that of a stroboscope out of sync.

In actuality films, the fault is generally unavoidable; but in all staged productions its avoidance is merely a matter of a little forethought, plus either some elementary mathematics or use of a reflex-shutter type camera, according to R. Howard Crick, British cinematographic engineer.

The fundamental cause of such strobe effects, says Crick, is quite simple. If in the $1/24$ th second from one exposure to the next a wheel turns the exact distance from one spoke to the next (Fig. 1), then the spokes will appear stationary. If in that time it turns slightly less than the space of one spoke (Fig. 2), the wheel will appear

to move backwards, because the eye would sooner believe that one spoke has moved a short distance backwards than that the previous spoke has moved nearly the distance to the next spoke.

If in the $1/24$ th second the wheel has moved exactly half the distance from one spoke to the next (Fig. 3), the wheel will appear to have double the number of spokes, which will be stationary. At any speed less than this, the illusion will be correct.

Mathematically, these facts can be expressed by simple equations, in which V is the speed of the wheel in revolutions per second, and n is the number of spokes. Spokes will appear stationary when

$$\begin{aligned} 24 \\ V &= - \\ n \end{aligned}$$

Continued On Page 432



Fig. 1



Fig. 2



Fig. 3

DIAGRAMS ABOVE show stroboscopic effects of spoked wheels when photographed with a motion picture camera at 24 fps. In Fig. 1, spokes are stationary. As strobe effect starts to develop, spokes appear to begin to move backwards, as in Fig. 2, and continue until they appear doubled in number, as in Fig. 3.

*How to select a recorder to start your MAGNASYNC-MAGNAPHONIC SOUND SYSTEM

Sound Equipment Checklist



T 400

When lightweight portability is a must the IF 8 L-800 Type 1 is the answer! Another reason to why producers choose this machine is that it is generally professional, and not, necessarily expensive!

From 1



1988]

The Type 1 is a miniaturized version of the Type 3 (low power consumption and extreme portability has made this 29 lb. unit a popular selection for remote location production by traveling professional motion picture studios).

Page 51348



TYPE 19

The K-400 Type 15 is designed for the user who wants everything in one case... playback amplifier, monitor speaker, storage cradle and torque motor. You can be proud to have this machine represent you in any record shop!

From 51305



TYPE I

The most popular magnetic film recorder in the world is the Type 50. With this unit and all its operational conveniences, you are definitely in the "super league." The Type 5 owner always starts his picture with a special feeling of confidence in the realization that he has allowed no compromise in the selection of equipment.

Figure 5: 5709

[illegible]

There is nothing on the market that compares with the remarkable Mark II. This unit is in a class by itself...with push-button remote controlled relay functions, plug-in module elements and all the "extras" that make for flawless recording under the most adverse conditions.

Page 4214E

Send for complete details on the new Nomad 7-4b, magnetic recorder-reproducer that makes any 16mm movie camera a sound camera, any projector a sound projector, with true interlock lip-synch. Priced from \$225.00



MAGNASYNC CORPORATION

doi:10.1371/journal.pone.0141720.g002

4446 Sanyata Ave., North Hollywood, California • STarline 7-5404 • Cable "MAGNASYNCR"

● 2008 年 10 月 1 日起

[illegible]

For 35mm FILM STRIPS!

For Animation!

For I.D. & Recording!

Modified

HILL & HOWELL
35mm CAMERA



SINGLE FRAME CAMERA —
"TRIP LIVER" ACTION

Method of lever-actuated shutter and advance film made by shooting up to 400 exposures per winding of your hand-powered programming crank built for long rugged trip and use. Takes economical standard and Super 8 loading, opens of 1/2000 sec. and 1/4000 sec. in color film. Same hand wheel.

WIND 35mm F/4.5 S & H Lens \$299.50
WIND 2" F/3.5 Lens... \$404.50

Model No. 4-112 or 4-113

BURKE & JAMES, INC.
321 E. Wabash Chicago 4, Illinois

AE-1-50

LIQUID GATE PRINTING FOR 16-35 BLOW-UPS

In meeting new 16mm and 35mm sizes, which eliminate vibration, scratch and grain and produce results easily 16 in. or better, this is the only method of printing for use in:

- REPLICATION OF SLIP AND WIND FILM
- EXHAUSTIVE VISUAL SEARCHES
- 16mm to 35mm BLOW-UPS...

This area of the economical liquid gate printing has been widely adopted due to the numerous benefits of Liquid Gate Printing, and the will prove its value.

Complete Laboratory and Office Service
NEW PRICE LIST AVAILABLE—INQUIRIES INVITED
FILM EFFECTS OF Hollywood, Inc.
1113 N. Wabash Ave. Hollywood 28 Calif.
SUNOCO DRIVE, AIC, President
Over 20 Years of Movie Studio Experience

MITCHELL STANDARD CAMERA

- 16mm, 35mm, 65mm and 100mm Treated Entry Lenses
- Lens 1600 f/2.8 Angles
- 110 inch Variable Speed Motor
- Viewfinder with built-in scale and TV Scale
- Shutter Box
- Mitchell Traped Filmend Head and Tripod
- Complete Set of Cases, Filter Holders, Hand Controls, etc.

THIS OUTFIT IS ABSOLUTELY
PERFECT MECHANICALLY
AND OPTICALLY

\$4500

Box 780 American Chromographer

WHEN WHEELS TURN BACKWARDS

Continued From Page 422

At any speed slightly less than this, the spokes will appear to move backwards. The spokes will appear to be double in number when:

$$F = \frac{12}{n}$$

The requirement for a correct illusion is:

$$F < \frac{12}{n}$$

In theory, stroboscopic faults can also occur at higher wheel speeds, but movement blur usually makes such faults unnoticeable.

As an example, if a 12-spoked wheel turns at exactly two rps, the spokes will appear stationary; if it turns at 1 1/2 rps they will appear to move backwards; if it turns at one rps, two sets of spokes will appear. At any lower speed the appearance will be correct.

Simpler than mathematics is the use of some device which will enable the cameraman to estimate the vehicle in the same way as the film sees it—at the rate of 24 separate pictures per second. The obvious answer to this demand is to use a camera having a reflex-type shutter—such as the Arriflex, Cameracine, the British Vision Everest, Debris, and the recently-introduced Mitchell Reflex 35. If a rotating wheel is viewed through the viewfinder of such camera, any stroboscopic faults will be immediately apparent.

To provide for other cameras, it has been suggested that the viewfinder be fitted with a small shutter, synchronized with the camera shutter. In the case of a camera driven by a Selys or Interlock motor, this would necessitate little additional complication.

If the cameraman, rather by mathematics, a reflex shutter, or by an improved type of viewfinder, discovers during rehearsal that the wheels of his vehicles are behaving in some improper fashion, what can he do about it?

The most obvious thing is to alter the speed of the vehicle. In all probability, if the vehicle is photographed at an angle, the effect, although present, will be unnoted. But if these remedies should prove impossible—end, after all, the director is entitled to demand that elementary technical matters such as this should be subordinate to his idea of the action—two remedies are left.

The first — rarely practicable — is to run the camera at a faster or slower rate. The second — which was once adopted by Sir Alexander Korda—is to fit the vehicle with wheels having a different number of spokes; in order to avoid guesswork the mathematics given above can be usefully employed.

In some recent Hollywood productions, still other expedients were employed such as painting every other spoke in the wheels a different or contrasting color, or by shading the spokes so as to minimize their appearance, making them almost imperceptible against the background subject matter.

Shooting such scenes with the camera's variable shutter opened wide, also tends to minimize strobe effect in wheels by introducing a small amount of blur in the moving object which in turn tends to obscure the troublesome effect.

MITE-LITE

Continued From Page 422

ments conducted by Leppert revealed these bulbs render useful photographic illumination for a total of 53 hours without discoloring the bulb glass.

The battery pack consists of non-spillable Willard wet batteries. These provide longer use periods of the lamp between charges than other types, according to Leppert, who finds the Willard units exceed in efficiency and power retention most jelly or solid-paste type batteries. Charging is not critical nor does the sealed-in gas pressure of these batteries give any trouble during the charging interval. Each cell has a built-in hydrometer in the form of a floating ball. When the ball sinks, it indicates the battery cell needs charging. "Ideal, because it eliminates the need for an expensive meter on the battery case," says Leppert.

A completely discharged battery unit can be re-charged in approximately four hours. A fully charged battery pack provides approximately two hours of usable light, when shooting requires frequent all on and on switching. A completely discharged battery unit can be re-charged in approximately four hours; and when regularly re-charged, one hour is usually all the time that is required to bring the pack



When you think of editing equipment...think of Hollywood Film Company

designers and manufacturers of film, instrumentation and video tape editing equipment

956 n. seaward st. • hollywood 38, california • ho 2-3284 • 524 w. 43rd street • new york 36, new york • lo 5-1546

NEW LOWEL LIGHT BARN DOOR

FILES FLAT

WEIGHS 5 POUNDS

ATTACHES INSTANTLY TO ALL 840 REFLECTION BULBS, 150-500 WATTS

EXTRA LARGE REMOVABLE DOORS

STURDY CONSTRUCTION

\$4.95

Ask your photo dealer about other new products from...

LOWEL LIGHT PHOTO ENGINEERING,
421 WEST 54TH STREET, NEW YORK 19, N.Y.

16MM
BLACK & WHITE
reversal printing & processing

COLOR
PRINTING

Fastest Service. Add Roll Prints
Quickturn. Fast, expert attention to
every job. Write for complete info
material. • Circular 2

LAB-TV
702 Seventh Ave., N. Y. 10 - • JUNE 8 • C-223

VIDEO

FILM
LABORATORIES

Established 1949

SPECIALIZING

In 16mm Film developing and printing

Super Anacolors have been developed to A.S.A. 400

- 16MM ANISCOCROME
- 16MM B&W REVERSAL
- 16MM B&W NEGATIVE
- 16MM B&W POSITIVE

330 West 32nd Street, New York 19, N.Y.

"MITE - LITE"
LIGHTED HYDRAULIC PORTABLE 100
LONGIE RUBINO AND LEE CHARGING
NETS 50W TONNE
LESS DARK BACKGROUND
FIVE ANY CAIRISA—COSTS MUCH LESS

JACK D. LEPPERT
2941 Oak Point Dr., Hollywood, IN. Certificate



**FOR
PRO RESULTS**

PROFESSIONAL FLUID MAN METER

your informed buying is looking ahead to the professional results you can expect. The Permac Johnson Professional Fluid Man Meter is the only meter that can be used for all types of fluid man measurements. It is the only meter that can be used for all types of fluid man measurements. It is the only meter that can be used for all types of fluid man measurements.

PERMAC JOHNSON INC. • P.O. Box 207, Appleton, WI 54912

up to full charge level again. "Most cameramen," says Leppert, "find that re-charging the batteries twice a week is ample for normal use. The charging unit, which is shown as an accompanying photograph, is 6" x 6" x 6" in size, and is easily packed with camera man's other gear in car trunk or suit case.

The rate of battery re-charging can be varied, and there's a built-in amp meter that shows the charging rate. The charger is so designed that it cannot be hooked up wrong, and fuses have been provided to further this protection.

Shooting Tri-X or DuPont 936 at ASA 250, exposures at 24 fps with the "Mine-Line" are as follows:

25 feet from subject	1/19
12 " " "	1/4
6 " " "	1/8
3 " " "	1/16

Although these exposures are appreciably snootier slower than all flooded by other portable light units, the Mite-Lite's picture quality is said to be better and the ratio of background fall-off is not as great as when other units are used. There is a noticeable reduction, too, in the bleaching of faces and dark backgrounds—two notable faults of mono-source lighting in newscast camera work.

In Hollywood, the Mit-Lite, complete with spare fuses and bulb, sells for approximately \$130.00. *

"HELL TO ETERNITY"

Continued From Page 414

manured the necessary electrical generators, which were mounted in trucks and hauled to the location sites.

Guffey had three separate camera crews working under his direction. The principal crew handling the key camera consisted of his long-time Operator, Andy McIntyre (a veteran of the battle of Okinawa), Jack Deemon and Bob Stroup, assistant cameramen. The Japanese crew assigned to the other two cameras included Junji Nishikawa, Toru Hayashi, Iwao Niki, and Keiji Oshima, most of whom had previously worked for American directors of photography bootstrapping in Japan. Indispensable to Guffey was his ever-present interpreter, Yomo Nonoguchi, better known as "Pepe." The Japanese camera crew praised Guffey highly, "Guffey can never get angry," said

one Japanese remembered, "no matter how bad things got, you just said

Directing the work of Japanese technicians was not new to Guffey. He had previously directed the photography of "Three Stripes in the Sun" which was made in Japan for Columbia Pictures in 1954.

"Hell to Eternity" was photographed in black-and-white with Eastman Pan-X and Tri-X film, for an approximate 185:1 screen ratio. All exposed film was sent by air to Hollywood where it was processed by General Film Laboratories. Dailies were flown back to Okinawa and projected in the evenings in the Camp Hansen post theater.

One of the most important sequences in the film is a famous night battle between the Marines and Japanese which culminates in a fanatical "human charge" by the Japanese. Over eight hundred Okinawan extras were recruited to take part in these scenes. About twenty-five of these men had formerly served as officers and NCOs in the Japanese Army, so authenticity was assured. Interposed among the Okinawans were Marines dressed in Japanese uniforms. It was their job to lead the Okinawans against their comrades as the 3rd Tank Battalion and the 2nd Battalion, 5th Marine Regiment, who were playing the American invaders.

It took the better part of a week to complete filming of the entire "barnal sequence." The location was about three miles from Camp Hansen in an area near Kinson overlooking the Philippine Sea. On several mornings, the crew call was for 4:00 a.m. so that the cameras and other equipment could be in readiness to shoot early dawn action.

An interesting and useful "field expedient" rigged up by Gaffney and his crew was an improvised camera boom. This consisted of a heavy-duty fork-lift placed in the back of a 4-ton Marine truck. A wooden platform, capable of supporting two Mitchell cameras and their crews, was added to the front of the lift. As the picture progressed, the Marine operators became very adept at holding the cameras smoothly for the boom shots. It was capable of lifting the camera to a height of about 30 feet and could be quickly moved from one set-up to another. When not in use as a camera boom, the lift was used to support booster lamps.

Most of the barnyard attack was staged at night and at dusk, so it was neces-

BROOKS CAMERAS

*The West's Largest
Selection of Fine
Professional Cameras*



BOLEX H-16 REX

from \$400,
with Lytar
1" f/1.8
lens.



Versatile shutter permits smooth fades and lap dissolves. Greater exposure control possible through partial closing of the variable shutter instead of lens shown with B23-525-A — an optional accessory (\$37.50) that permits automatic operation of the variable shutter.

BOLEX 16mm LENSES

Pre-Cover 85—w/8.5" Focus 17.5 to 85mm—F2	\$426.00
Pre-Cover 6/2.8 lens, focal lengths from 17.5mm to 70mm	\$389.50
Pre-Cover 100/2.4 lens, focal lengths from 25mm to 100mm	\$426.50
Switar 12mm w/1.6 FM 1" to inf "C" mount, Varilux	\$148.50
Switar 16mm w/1.3 FM 1" to inf "C" mount, Varilux	\$166.50
Switar 25mm 1" 1/2.5 FM 1 1/4" to inf Varilux	\$119.50
Yver 100mm 4" f/3.2 tele 4-power magnification Focus 8 to inf	\$483.50
Yver 35mm w/1.6 f/3.2 Focus 1" to inf "C" mount Varilux	\$54.50
Switar 35mm 3 1/2" f/3.5, focus 2 to inf Varilux, Covert, Pre and Reflex	\$145.00
Yver 35mm 3" 1/2.8 tele Focus 8 to inf "C" mount Varilux	\$49.50
Switar 25mm 1" 1/4, Focus 1 1/4 to inf "C" mount	\$109.00
Switar 1/1.4 50mm 2" tele lens Ultra-high speed Focus 2 to inf	\$369.50
Yver 100mm 4" f/4 tele lens 7 1/4" length FM 12" to inf with case	\$145.75

NEW ARRIFLEX 16

The only 16mm camera providing through-the-lens focusing and viewing during exposure, with divisible finder system, built-in buckle switch and motor, cable lock, neck strap, slider, two lens-convex caps, and test film — \$1452.00

Same as above without built-in buckle switch and motor	\$1388.00
cable lock	\$295.00
13mm Oregon F1.8	\$189.50
16mm Xanon f/1.8 lens	\$189.50
16mm Xanon f/1.5 lens	\$189.50
16mm Oregon f/2 lens	\$179.50
Pre-Cover 12—Same lens 12 lens to 70mm	\$266.00
Arriflex Model 16 Tripod	\$163.00
400-E Magazine	\$138.00
Topcon Mirror	\$157.00



AURICON CINE-VOICE II

16mm sound-on-film movie camera with professional heavy-duty 3-lens turret. Operates from house current or car battery. Available in a choice of models to suit a variety of filming requirements. \$699.50

CINE VOICE II—Used \$495.00

AURICON PRO-600—16mm optical sound-on-film, self-limping, sync motor drive for single or double-system recording. Electronic take-up, film-flow without friction clutches or belts. Various combinations of accessories available. \$1459.75

AURICON "SUPER 1200"—16mm sound-on-film camera built-in imping with 3-lens turret for "C" mount lenses 1200 ft capacity for 33 minutes recording time. \$4748.00

SUPER 1200 — AURICON-TLF professional model, wgt 27 lbs. \$4619.00

AURICON PRO-200 New \$1,495.00

Used \$980.00



HOUSE OF
BRAND
NAMES

BROOKS

CAMERAS

6 TIMES BRAND
NAMES WINNER

45 NEARBY AT MAIDEN LANE • EXHIBIT 2-7345 • SAN FRANCISCO 8, CALIFORNIA

- 2 Hours Free Parking at Santa's with \$3 purchase
- Instant Credit plus Your BankAmericard
- Open 5-8, Mon-Tu 8 p.m.

Laboratory Equipment

SONOVUE
THROUNDER

With a new twist!
With Sonovue, with its mounting bracket — \$40.00

With mounting bracket and cables — \$100.00

CHEMICAL PUMPS
All sizes
N. H. pump
with motor — \$10.00

PROFESSIONAL FILM PROCESSORS
with the famous Micro Tension Drive

METAL MASTERS
5001 University Ave., San Diego 5, Calif.

**BOLEX ACCESSORIES
BY STEVENS**

Variable Shutter • Split-Frame Work • Syn-
chronizer and Battery Camera Drive • Time
Lapse Timer • Lens Extension Tubes • Back-
over • Turret Lens • Third Turret Stop • Turret
Filter 33ides • Camera Base • Lens control
Handle • 400-P. Magazine • Sound Speecher

Write for our Bolex Accessory Catalog

STEVENS ENGINEERING CO.
345 N. Newport Blvd.
Newport Beach, Calif.

HOUSTON REARLESS

**PANORAM
DOLLIES**

Thoroughly Overhauled—
Guaranteed

SPECIAL LOW PRICE:

Immediate 4-Wheel	\$1,400.00
Delivery 1-Wheel	1,800.00

CAMERA EQUIPMENT CO., INC.
323 West 42nd Street, New York 36, N. Y.
Address R-1420

Automatic Daylight Processing

DEVELOPING TANK

- Processes up to 300 ft.
- Removable film tray
- Marking—8-1/2" x 11-1/2"
- Slide driven potter
- Uniform developer amount
- 400 ft. Tank available

FILM DRYER

- Water alcohol-based
- Heating drying
- Automatic shuttles after-
- ness
- Driftless steel and
- chromium construction
- Quickly assembled without
- tools
- General, Portable

Designed
Write for Free Literature

Micro Record Corp. 407-14
South Ave.
Boscon, N.Y.

nary for Guffey to shoot day-for-night, using filter combinations in conjunction with booster lighting on the faces of the players. Multiple cameras were employed using a wide range of lenses. Telephoto lenses and the "zoom lens" were frequently utilized in photographing some of the long shots.

Radio "walkie-talkies" and sound powered telephones were used extensively by Karlson to communicate with his assistant director and with the Marine commanders controlling the troops. When the actual battle charge was made, Assistant Director Paylow and his chief aide, Joe Marickoff, gave the Okinawa extras a "pep talk." The resulting scene was so effective and frighteningly realistic that Director Karlson applauded and thanked them warmly for their efforts. Karlson was very popular with the Okinawans.

Three Mitchell Cameras Used

Several days were spent filming close-in hand-to-hand fighting and vignettes of Marines and Japanese in action. This included shots of Japanese soldiers wielding samurai swords and bayonets and engaging Marines who also met them with bayonets and clubbed rifles and carbines. Guffey would first photograph these scenes using all three Mitchell cameras. Then the action would be repeated with Operator Andy McFartyre using the hand-held Ariflex 35mm for close-in shots. McFartyre had to be agile to avoid getting upset by struggling actors.

All of the key members of the cast took part in those vignettes and sometimes dangerous scenes. Staff man Gil Perkins was assisted by a group of Marine jacks and bayonet experts, but this did not spare Jeffrey Hunter, David Janssen, Vic Damone and John Larch from a few bruises. Phil Karlson likes to keep the cameras "close-in" to the action so this precluded the good practice of doubling the principals. Jeffrey Hunter, in particular, was involved in several rough and tumble scenes and these were not faked. If the bumps came his way, he cheerfully accepted it all as part of the scene.

On a grueling and unseasonably warm afternoon, Guffey and his crew worked in the vicinity of Chibana, shooting a sequence showing Sessue Hayakawa walking amongst his men and observing their pitiful state of semi-starvation. Shooting this action was complicated by roaring jet fighter planes taking off and landing from nearby Kadena Air Base.

Almost immediately following the filming of these scenes, the company moved into Kosa, the second largest city in Okinawa, where a street had been converted to look like a section of Honolulu. Guffey and his crew worked all night shooting exterior of the Marines enjoying a "liberty." Typ-X film and batteries of 16K and 26K lamps were used on these scenes. A major disaster occurred when one of the Mitchell cameras was accidentally knocked over and badly damaged. Emergency repairs were made and shooting continued without a break but a replacement camera had to be flown in from Hollywood.

In one key sequence, Jeffrey Hunter and Bill Williams, hiding in a camouflage "spider hole," secretly observe Sessue Hayakawa and his men planning a desperate last ditch battle attack against the Marines. The script called for a shot showing the two actors carefully lifting the cover of their hiding place and watching the Japanese in action. This scene had to be staged showing the entire operation from the viewpoint of the two hidden Marines.

Here Guffey was able to again employ his multiple camera technique most effectively. One camera, equipped with a wide-angle lens, was placed at ground level in a trench dug directly to the rear of Hunter and Williams. This camera covered the two actors in one corner of the frame and in the background also included the Japanese. Another camera, placed above the ground, covered a general view of the Japanese in action. The third camera, mounting a "zoom" lens, followed Hayakawa and his men as they moved about the set. Three men manned this camera: an operator, one assistant controlling the "zoom" handle and the other panning the focus.

The climax of the picture comes when the Japanese commander (Hayakawa), who has been persuaded by Gabeidon (Hunter) to surrender the remains of his army to the Marines, countermands his original order for a last stand effort and, instead, tells his men to surrender to the Americans. Then, before their horrified eyes, he commits suicide in the traditional Japanese manner of *harikiri*. As Hayakawa comes to attention, the *harikiri* knife tears at his vitals and, grimly trying to hold back the pain, he orders "Forward March!" Then he

slowly slides to the ground and dies.

This scene was photographed with Hayakawa and Hunter moving toward the edge of a hill overlooking a small valley where over 800 Japanese soldiers are calmly waiting for orders to attack the Marines. The dolly-mounted camera travels along in front of them as they move forward to the brink of the hill and, as they reach their objective, the camera tracks backward and, keeping both actors in the frame, pans to reveal the waiting Japanese soldiers. It is then that Hayakawa plays his impressive scene.

Fork-Lift Camera Boom

Gaffey employed his improvised fork-lift camera boom for the final scene in the picture. As Jeffrey Hunter leads the Japanese prisoners in "jaid-piper fashion" from out of the valley and toward the American lines, two cameras (one fitted with a "room" lens) are slowly lifted 30 feet into the air by the fork-lift and then down again. It is a dramatic and reflective shot.

Most of the interiors as well as the U. S. locations were filmed after the company returned to Hollywood. The interior of Hayakawa's cave headquarters was made on one of the sets constructed in the Camp Hansen gymnasium.

I concentrated my personal movie making mainly around the beachhead invasion and the brutal attack scenes. Most of this footage was devoted to scenes of the production crew at work: Gaffey and his crew in action, Karlson rehearsing actors, make-up men at work, and various shots of the principal actors relaxing "between-takes." Jeffrey Hunter is also an amateur movie maker and works in Itasca with Bolex cameras. John Larch, who plays Gabaldón's company commander, is another amateur filmer.

My equipment consisted of two Bolex cameras: one an H-16 model equipped with a Pelligrini variable shutter and the other a new "REX" reflex model with an attached automatic fading device. Exposure readings were taken with General Electric and Norwood meters. It was not possible to use a tripod without getting in the way of the crew, so all shots were made with camera hand-held; however, I was able to support the camera frequently on ladders, parallels and several times on an unused 35mm camera tripod. In this



Most of our clients . . .





... stay with us.

- Sound • Editorial
- Laboratory Services

Capital

CAPITAL FILM LABORATORIES, INC.
2905 FAIRVIEW AVENUE, N. E.
WASHINGTON 2, D. C.
PHONE LAWRENCE 8-4834

connection, the Steens camera bases I use on my cameras were of considerable benefit.

I was able to shoot a number of actual scenes from the picture being photographed. However, I shot only those scenes made without sound and some of the big battle scenes which included only sounds of artillery and gunfire. This precaution was necessary to prevent sound of my unblimped camera raising the sound track. For some of the dialogue scenes, I was able to shoot rehearsals. This was done well to the rear of Gaffey's camera positions and I always included in such scenes both the crew and the players in action. Here I should like to express my appreciation to "Chuck" Hanzawa and his grips who somehow always had an extra step ladder or unslung parallel handy when I needed one to shoot from

"STORY OF RUTH"

Continued From Page 421

a block long and a half block wide.

Arling gave this sequence a great deal of thought before deciding to cover the exterior set with tarps (tarpaulins) and shoot it under artificial light. "At first I thought I might be better off to let the sunlight in," he explains, "but I was deterred from this for the reason that we were shooting in the winter and couldn't be sure we would get a sunny day. There were about 200 people involved, and that's a pretty big call these days. Regardless of what kind of day I had gotten, I would have had to shoot the sequence—and if I'd gotten a foggy day I would have been in trouble, because the establishing scene shot in Africa was filmed in very hot sunlight, which these scenes had to match. If the day were sunny, I would have had to keep 200 people waiting while the crew pulled the overhead rigging to eliminate shadows of lights and cross-beams. Before making a decision I studied the set for several days to determine if the shooting day would be long enough for filming in sunlight—but because the set was rather like a canyon, the sun passed over it quickly so that by three o'clock in the afternoon it was filled with heavy shadows. All things considered, and especially since I would need the tarps for the night quarry

sequence, it seemed like the best judgment to go ahead and shoot the day scenes with the tarps pulled also."

Working under the tarps permitted greater control, but with so many lights involved the flickering of the arcs caused inevitable delays. This was especially so when yellow carbons were used. Yellow carbons burn at the same color temperature as incandescent lamps (about 3300° Kelvin) so that the two types of light can be mixed, eliminating the necessity for filters in front of the arcs. However, the yellow carbons tend to flicker, whereas the white carbons, used in matching daylight and also in night photography, burn more steadily.

The night quarry sequence gave Arling opportunity to make full use of a technique which he had employed only sparingly in previous films—the mixing of warm and cold light. The sequence depicts a crowd of prisoners at work in the quarry at night. The set is generally suffused with an overall cold light of a slightly bluish tinge to suggest moonlight. The arcs of action are bathed in pools of amber light to simulate the torch-light supposedly illuminating the scene. The contrast of the warm torchlight against the blue moonlight of the shadow areas created a highly pictorial mood. This mixture of light was again used effectively in a sequence shot on the stage depicting the forest glade in which an outdoor festival and wedding take place.

One of the attributes of a top-notch cameraman is his ability to keep the company shooting, if possible, no matter how bad the weather. During shooting of "The Story of Ruth" a siege of overcast forced the company to shoot indoors until it finally ran out of interior sequences, and there was nothing left to shoot but exteriors. Arling decided to take advantage of a bad situation and turn it in favor of the story.

There is a sequence in which Naomi, in despair, kneels to pray. She hears a voice calling and goes outside to find an old man, Jehonah—a mystical and prophetic figure—who tells her to trouble her heart no more, for from the widow of her son will issue a great king and a royal house, a prophet who will be worshipped as the Messiah. He asks for bread and she rushes to get it, only to find him gone when she comes on. Immediately thereafter there follows a life-

the other players they needed all the facial lines and character features that sharp photography could give them.

For closeups Arling used one of the new non-distorting 3-inch lenses turned out by Bausch & Lomb for 20th Century-Fox. This lens can be focused down to three feet without producing distortion. Cross-lighting was used on the male players to bring out character lines and make them look ruggedly virile. It also enhanced the apparent depth of field, even when shooting at 1/4.

For Arling, this opportunity to photograph a Biblical picture became the fulfillment of a dream. Sometime earlier, he had spent a great deal of time studying the art of the Old Masters in the National Gallery in Washington, D.C., in the Louvre and also in museums in Rome. He had been particularly impressed with the way Michelangelo modeled the lighting on his figures. "The Story of Ruth" gave Arling a perfect opportunity to apply what he had learned from the works of the Old Masters, because the elements of the film were so similar to the subject matter painted by these classical artists. Even the rough texture of the walls and the homopagan character of the fabrics in the Judean sequences were very like those shown in many of the religious paintings he had seen, and he tried (most successfully) to reproduce the aspect of depth and roundness and the lighting in those paintings. It was quite a departure from the bright, full-front lighting used on his previous assignment, the hit comedy "Pillow Talk." For Arling, the picture was in every way a happy assignment. *

GOOD LIGHTING

Continued From Page 428

he was supposed to be eighty-five. From then on, if scenes had to be matched, we had the necessary information on our basic setup.

The bulk of the production took us on the sound stage where most of the sets had already been built and dressed. The greater number represented offices and homes around the turn of the Century. To keep this mood, flat lighting and standard effects, such as Venetian blind patterns, were avoided. Costumes and general decor were all in dark, somber colors.

Since Kodachrome prints do not reproduce dark colors satisfactorily, all

woodwork in these period sets was stained a medium walnut for reproduction as dark mahogany; and costumes, such as navy blue suits, were an electric blue.

To achieve the effect of true "source lighting," we always tried to show electrical fixtures in the scenes. Wall fixtures worked with No. 1 photofloods adequately shielded to prevent flare. Our prop department came up with some interesting colored glass fixtures which supplied ready-made shielding. Naturally, the visible photographic light came from regular studio lamps. Our standard overhead lamps were 2,000-W spots mounted on swivels set up on parallel. Key lights were, in most cases, 5,000-W spots with large cones for fill.

Where an obvious light source was lacking, the effect of daylight coming through windows was used. If no window actually showed on the set, the pattern of a window of the period was projected into the scene.

Until we began shooting scenes which required gas light sources, these sequences presented no real problems. Some of them, however, had to begin with gas and then change abruptly to electricity. One of our largest set-ups depicted the St. Louis Exposition of 1898. The crowd was milling about an electrical display, presumably lit by gas jets. During the take, the display was turned on, bathing the crowd in "white" light. To achieve this, two lighting set-ups were used, each tied into an independently-operated dimmer.

The "gas jet" scenes were handled by hard crosslighting with yellow gels over all the lamps. Very little fill was used and the result appeared as individual gas jets on either side of the crowd. On cue, the "yellow" lighting set-up was killed and the normal "white" set-up was turned on. This latter equipment, of course, had no gels and color temperature was balanced to give natural flesh tones. We figured for much less contrast and used medium to strong fill. The total effect was

amazingly realistic.

To conclude the sequence, an electric miniature of the whole Exposition was constructed. This scene followed the one of the crowd and showed what appeared to be hundreds of lights blinking on all over the Fair Grounds.

The next sequence we shot actually preceded the Exposition scenes. It showed the rescue of Oley who had been knocked unconscious by a short on a switchboard, which extinguished all backstage lights. Carrying a kerosene lantern, a fellow worker gropes through the darkness. The backstage atmosphere was produced by use of our stage parallel and a switch panel of the period. One 5,000-W spot with a yellow gel gave a faint idea of the location, with the rescuer materializing out of the darkness, carrying his lantern. For this effect, a 2,000-W spot with a yellow gel turned the truck and a medium snoot was mounted to confine the beam to a round spot. Since our actor was walking towards the camera, the spot had to track him and follow each movement of the lantern. In order to gain enough exposure, the set lamp had to be spotted down almost all the way and keeping a constant distance from the actor was important. A medium shot followed where the rescuer stumbled over Oley's body and knelt down to revive him. Following this action called for extreme accuracy on the part of the spot operator.

We had another interesting problem where the original founders of the Union were to be photographed by an old-fashioned 8x10 view camera. Our objective was a shot through the back of the camera as the photographer would see it, with the effect of the camera being brought into focus. To get this, we removed the ground glass from the back of the view camera, setting our own equipment in a position which filled our frame with the back of the old-fashioned number.

The two Union men grouped before the camera were lit, and separate lighting was set for the back of the camera. However, since the group had to be shown going in and out of focus but with the back light staying sharp, we managed this by first killing the illumination on the back of the old portrait camera. Then the group of men was lit and photographed with the in-and-out of focus effect. After the take, the shutter of the Mitchell was closed, the lens capped for safety and the film cranked back to the beginning.

WHEN CHANGING YOUR ADDRESS

Please notify us at least four weeks in advance. BE SURE to give your former address as well as your New Address. Our Circulation Department needs both addresses in order to properly identify your address sheet.

Your cooperation will insure that American Cinematographer will continue coming to you regularly without delay or omission of issues. Thank you.
American Cinematographer

The lights for the back of the old camera were then turned on; our camera focused on it and the lighting of the group was killed. The re-exposure gave us the desired result, with the group coming into focus while the back stayed sharp. In making each a shot, of course, the camera had to be rigidly locked in position.

These were but a few of the problems we encountered in shooting this picture. They were headaches, to be sure, but the answer print quickly showed it was worth all the effort. ■

EXTENSION TUBES

Continued From Page 434

one example of this occurs in the reversal of image and object is the case of projection as compared to photography. In the latter, we have an image on film which is photographed in the usual manner. When projected, the same image, with the aid of a light source, is pushed back through a lens system, similar to the one used in photographing it, and the object is thrown back to pseudo infinity. Were the lens used in projection of the same focal length as that used in photography, and the distance-to-screen the same as the object-to-camera distance, the projected image would be the same size as the original subject.

With this explanation, we establish a foundation on which to advance the principles of conjugate foci as employed in photography with extension tubes. And we might also attempt to clarify the meaning of this term: Foci, of course, is the plural of focus; conjugate, in this instance, means "conjoined in pairs." Roughly then conjugate foci are the distance from the lens to the image, and from the lens to the object.

The standard close camera lens is first considered in focus at infinity. By increasing the distance from lens to film, it then becomes necessary to shorten the distance from lens to object to arrive at the conjugate foci. The greater distance that is selected for the focusing tube, the shorter will be that distance from lens to object. This involves something of a problem in photography, as often the lens is so close to the object that it is difficult to illuminate it. As the distance is increased, the size of the image is also increased.

A few of the fundamentals may be important to the reader; the simple rules which should be applied pertain

You save with **CECO**[®] 3 rentals ways

Cameras: 16mm & 35mm—Sound
(Single or Double System)—Still
—8" Speed

Lighting: Arcs—Incandescents
—Spot—Floods—Stimulators
—Reflectors—All Lighting Accessories

Sound Equipment: Magneto—
Optical—Mikes—Cams

Grip Equipment: Parallels—
Cables—Other Grip accessories

Buildings: Crib—Western—Portable
Panoramic—Cams

Lenses: Wide angle—Zoom—Tele-
photo—Anamorphic

Generators: Portable—Track
Mounted

Editing Equipment: Moviolas
—Viewers—Splitters—Reconnect

Projection Equipment: 16mm &
35mm—Sound & Silent—Slide—
Continuous

Television: Color—Circuit TV

8"mm Camera Car

*CECO—Headquarters of Camera
Equipment CO.

1 Every piece of equipment is checked out to perform "better than new."

2 Your accountant will explain the tax benefits of renting versus buying.

3 CECO provides all normal servicing free of charge.

More experts use CECO Rentals more often—because if we don't have it, who has?

Branch:

CAMERA EQUIPMENT CO., INC. OF FLORIDA
1331 East 18th Avenue • Hialeah, Florida

SALES • SERVICE • RENTALS

CAMERA EQUIPMENT CO., INC.

Department 444 315 West 42nd Street, New York 36,
New York • JEdison 8-1423

Gentlemen: Please rush me your FREE complete catalog of Rental Equipment.

Name _____
Firm _____
Street _____
City _____ State _____

NEW E-Z Professional FILM SPLICER

SETS A NEW STANDARD FOR 16mm

"So easy you can operate it blindfolded!"



OUTSTANDING FEATURES

1. Exclusive E and F cut mechanism interferences with plastic dies
2. Spring lever action controls maintain uniform tape during operation
3. Tape splicer made no frame (bars), leaving film free once clean and clear

- Quick, easy and precise automatic mechanical alignment of film and splicing tape
- Dies readily removable E-Z TAIL, no heating or heating splicing tape
- Precision all metal construction, hardened and ground cutter blades
- Spring steel alignment pins for easy operation and automatic adjustment to eliminate film

\$39.95

WRITE FOR FREE ILLUSTRATED BROCHURE OR USE YOUR SELLER

BOWE LINE CORP. 7730 E. Van Ness St., So. San Gabriel, CALIF.

Excludes
includes mail
of U.S. only





AMERICAN SOCIETY OF CINEMATOPHAGERS

ROSTER • JULY 1, 1960

ACTIVE MEMBERS

L. B. Abbott
David Aoki
Lloyd Allen
Gott J. Anderson
Lucien Andriot
Arthur Arling
John Arnold
Gordon Artl

Leslie Ballard
Charles E. Ball
Carl Berger
Joseph Bero
Charles P. Boyle
Lloyd Fredell
Norbert Braden
Robert J. Brasser
Joseph Brax
Robert Bruck

Jose Carlos Carbual
Ella W. Carter
Walter Carle
S. C. Chick
Dan Clark
Charles G. Clarke
George Clement
Wilfrid Cline
Raymond Collins
Edward Colman
Ole Comstock
J. Burgel Conner
Stanley Conner
Ray Clay
Floyd Crosby
Russell Gully

Wm. H. Daniels
Mark Davis
Fayee Dean
Robert de Caux
George E. Delmont
Lawrence Dunn
Evelyn B. DuPar
Eugene Dyer

Paul E. Engler
Arthur Edson
A. Farrier Edmister
Russell Ervin

Maximilian Fabian
Desert L. Fapp
Arthur Fendel
Ray Fennerson
Frank Fenger
Edward Fengerfeld
Frank F. Felton
George L. Foley
Ray Foster
Elmerwick Fredricka
Henry Friedman
Karl Freund
John F. Fulton

Lee Garmes
Frederick Gandy
Henry Gatzman
Alfred E. Gilks
Donald C. Glesner
James Gordon
Jack Greenhalgh
Loyal Griggs

Forrest Guffy
Carl Guthrie

Harry Halpernberger
Ernest Haller
Sol Helman
Ralph Hammer
Harold Harkin
Charles Hartman
Charles W. Herbert
John L. Horowitz
Sol Hughes
Conrad Humphreys
Robert Hunt
Winton Huck
Owen S. Hurley
Eric Huxford
James Wong Howe
Ed Hyland

Ed Iversen

G. Floyd Jackson
Way H. Jacson
Yehuda Jakobson
Felix Kaufman
W. Wallace Kelley
Glen Kershner
Joe Kim
Doug H. Kline
Lloyd Kunkel
H. F. Kussow
William Kussner

Charles B. Lang, Jr.
Joseph LaShelle
Frederic Lantis
Philip Lathrop
Charles C. Lawton, Jr.
Sam Leavitt
Paul K. Lepage
Lloyd Lewdon
Leo Lippa
Harold Lipsitz

Joe MacDonald
Jack MacKinnon
Glen MacWilliams
Don Makin
Fred Mandel
William Margulies
J. Fremont Marley
John J. Martin
Harold J. Maxwell
Joseph May
Ted McLeod
Wm. G. Mehlner
Ray Mercer
Russell L. Metz
Arthur C. Miller
Vincent Miller
Victor Miller
Hal Mohr
Mark Morawitz

Harry C. Neumann
Roy Overbaugh

Louis Page
Ted Pallas
J. F. Painter
Ernest Palmer
Kenneth Perch
Harry Perry
Paul Perry
R. W. Pitzsch

Robert H. Planch
Frank Planch
Gordon B. Pollock
Pierre Ponsoloni

Clark Ramsey
Frank Redman
Ray Reichenbach
Gordon Reicher
Irving Ren
Irving Spolansky
Leo H. Ross
Charles Roster
Harold Roston
John L. Russell
Joseph Rutenberg

Robert Sells
Charles Salento
David Sevel
George Schneiderman
James Seely
John Stein
Leon Stenney
Henry Sharp
Douglas Shattuck
Louise Shaw
William A. Siskner
Wm. V. Smith
Clarence Smith
Edward Snyder
Wm. E. Snyder
Harry Squire
Ralph Stank
William Stank
Mark Stangor
Alan Stenard
Clifford Stone
Harold Stone
George Storratt
William J. Stern
Archer J. Stern
Harry Strubling
Walter Stronge
Karl Struss
Robert L. Surtees

Philo Tammara
Elke Thackeray
Stuart Thompson
Robert Tobey
Lee Toner
Thomas Trowler
Charles Vye Enger
James C. Van Toot
Zohi Vider
Paul C. Vogel

Joseph Walker
John F. Warren
Gilbert Wasserman
Harold E. Williams
Ford West
Albert Wetzel
Wm. F. Whizley
Harry Wild
Wm. M. Williams
Ben Wintny
Ralph Woodley
Lathrop Worth
Frank C. Zuckor

ASSOCIATE MEMBERS

Herbert Allen
Samuel Allen
Mark Amundson
L. J. Baker
Berk Berg
Edgar Briggs
John Bishop
Louis A. Bone
Wilford W. Bowser
Robert E. Burns
Gifford S. Chamberlain
L. M. Coats
J. L. Coats
George Coats
Wm. A. Coats
Dr. C. R. Cooley
J. F. Dougherty
John W. DeVall
William Edmonson
Ferdinand Eish
Walter L. Fisher, Jr.
Ted Fitzgibbon
Fred W. Gage
Wm. E. Gagliardi
George H. Gahan
Dennis F. Goffrey
Jack Goetz
Henry Goldfarb
Allen Holmes
Charles Handley
Robert Harwood
Ted Harsh
William H. Hebe
C. Carleton Hunt
Henry Huse
Oswald Hyndman
Ray Johnson
W. F. Kelley
John J. Kewelski
Wilma Leaky
Schuyler Lind
John M. Maynard
Lewis L. Melior
Peter Mohr
Belle Myers
O. W. Murray
Capt. Don Narwood
Samuel O'Brien
Val E. O'Connor
John Patten
Harry E. Pratt
Wm. J. Reddick
Robert Riley
Laura Ryker
Vaughan C. Shaver
Norman L. Simmons
Solomon P. Solow
Earl Spaulding
John J. Swales
Leo Vance
Wm. J. Wade
Jack Webb

Wm. H. Daniels
Mark Davis
Fayee Dean
Robert de Caux
George E. Delmont
Lawrence Dunn
Evelyn B. DuPar
Eugene Dyer
Paul E. Engler
Arthur Edson
A. Farrier Edmister
Russell Ervin
Maximilian Fabian
Desert L. Fapp
Arthur Fendel
Ray Fennerson
Frank Fenger
Edward Fengerfeld
Frank F. Felton
George L. Foley
Ray Foster
Elmerwick Fredricka
Henry Friedman
Karl Freund
John F. Fulton
Lee Garmes
Frederick Gandy
Henry Gatzman
Alfred E. Gilks
Donald C. Glesner
James Gordon
Jack Greenhalgh
Loyal Griggs

HONORARY MEMBERS

F. O. Blackberg
Edward P. Certe
Wm. J. Garmes
David MacDonald
G. A. Marshall
Richard F. Walsh

to the image size. When a lens is extended to a distance which is twice its focal length, and the object is also placed at the equivalent of two focal lengths distant, the film image will be the same size as the object. This is almost the limit for short focal length lenses such as used in cinematography, although telephoto lenses require longer extension tubes to retain this proportion.

In undertaking cinematography with extension tubes, it is necessary that there be some method of reflex or through-the-lens focusing employed. This is because the area covered by the lens will be very small, and parallax will be a problem. Also, careful focusing is necessary due to the extremely limited depth of field—actually almost nil.

The answer to the second question posed by the filmer referred to in the opening paragraph, viz., "Will use of extension tubes reduce the original f /value of the camera lens?" is yes. The f /value of the lens will be changed and it also will be necessary to determine a complete new set of f /values for the lens when it is to be used with extension tubes.

Charts are available in many photographic handbooks that show the f /value changes for various lens-extension-tube combinations at a glance. (One such chart is reproduced at the beginning of this article.)

In order to keep the explanation as simple as possible, we will consider the use of a 1-inch extension tube with a 1-inch lens. This makes it simpler mathematically to apply the formula for exposure, here the lens measurements have been converted to millimeters—the 1-inch lens equalling 25mm.

Distance of lens to image squared

Focal length of lens squared

or

$$\frac{50 \times 50}{25 \times 25} = \frac{2500}{625} = 4$$

The exposure, therefore, for the tube-lens combination in question, must be increased 4 times. Thus, if an exposure meter reading indicated an exposure of $f/8$, for the 1-inch lens alone, it would be necessary to set the lens at $f/4$, when using the lens with a 1-inch extension tube.

If we take the problem of the tube-lens combination suggested by the filmer, i.e., the $1\frac{1}{2}$ -inch extension tube with the 1-inch (8mm camera) lens, the lens to image distance is $1\frac{1}{2}$ times

the focal length, which produces an image size equal to one-half that of the object. In this case, however, the distance of the object from the lens must be increased to obtain sharp focus, thus (here again the lens size is changed to millimeters, $1\frac{1}{2}$ -inches equalling 37.5mm).

$$\frac{37.5 \times 37.5}{25 \times 25} = \frac{1406.25}{625} = 2.25$$

... in which case the exposure must be increased $2\frac{1}{4}$ times. The new value of, say, $f/3.5$ would become approximately $f/5$.

In this same example, the distance at which the object should be placed is determined by the following formula:

Focal length of lens plus Focal length of lens

Magnification (or reduction)

or

$$25 \div 2.25$$

$$0.5 = 25 \div 50, \text{ or } 75\text{mm}$$

(converted back to inches equals 3)

Where it is necessary to calculate the revised f /value of a certain lens-tube combination to correspond with the lens stop indicated by an exposure meter reading, divide the f /number (indicated by the meter) by the sum of the focal length of lens and the extension tube. Then multiply this figure by the focal length of the lens. The result will be the f /stop at which the lens should be set in order to achieve the exposure indicated by the meter.

NEW, FAST COLOR FILM

Continued From Page 417

Both of the Ektachrome ER films are multilayer, three-color reversal types with dye-forming couplers built in. These consist of a clear gelatin top layer for protection against abrasion; a blue-sensitive emulsion with a coupler to form the yellow dye image; a yellow filter layer; a green-sensitive layer with a coupler to form the magenta dye image; a clear gelatin interlayer to prevent color contamination; a red-sensitive emulsion with a coupler to form the cyan dye image; a clear gelatin insulating layer; the antihalation layer; and finally the safety support.

For use in conjunction with these camera films, Eastman has developed Ektachrome Reversal Print Film, Type 5580 (35mm) and Type 7390 (16mm). It is a fine grain, high-defi-



SPECTRA® 3-COLOR METER

The ONLY meter that measures all light sources, including DAYLIGHT, accurately!

SPECTRA 3-color meter measures the proportionate amounts of all three primary colors present in the light source and includes the filters necessary for positive color correction in Spectra Index Units. (*Kodak conversion table supplied)



Write for descriptive literature and complete specifications.

PHOTO RESEARCH CORP.

Walt Pines, A.S.C. President
55740 CAHUENGA BLVD.
HOLLYWOOD 28, CALIFORNIA

TIGHT BUDGET? RENT CAMERA LENSES

Now! If you are working on a tight budget, but want to make a tremendous showing at a small outlay... your T.V. station can RENT the World's Best Lenses from R. E. J. Extensive selection! Of-the-Shelf Delivery! Platters in T.V. Optics—since 1924!

TV and CINE OPTICS UNLIMITED!!

For Color — Black and White

Choice of focal lengths, Apertures and Speeds from F2.8 to F16, 1/2500, or Special Custom Focusing from F 8 to F16. Lens Sets R & J is provided to meet the most exacting needs of your TV Station. NOW! Rent collections of One Lenses — Two Lenses — Three Lenses, etc. and also (Rental — 100% refund) — 4-lens, 5-lens, 6-lens, 7-lens, 8-lens, 9-lens, 10-lens, 11-lens, 12-lens, 13-lens, 14-lens, 15-lens, 16-lens, 17-lens, 18-lens, 19-lens, 20-lens, 21-lens, 22-lens, 23-lens, 24-lens, 25-lens, 26-lens, 27-lens, 28-lens, 29-lens, 30-lens, 31-lens, 32-lens, 33-lens, 34-lens, 35-lens, 36-lens, 37-lens, 38-lens, 39-lens, 40-lens, 41-lens, 42-lens, 43-lens, 44-lens, 45-lens, 46-lens, 47-lens, 48-lens, 49-lens, 50-lens, 51-lens, 52-lens, 53-lens, 54-lens, 55-lens, 56-lens, 57-lens, 58-lens, 59-lens, 60-lens, 61-lens, 62-lens, 63-lens, 64-lens, 65-lens, 66-lens, 67-lens, 68-lens, 69-lens, 70-lens, 71-lens, 72-lens, 73-lens, 74-lens, 75-lens, 76-lens, 77-lens, 78-lens, 79-lens, 80-lens, 81-lens, 82-lens, 83-lens, 84-lens, 85-lens, 86-lens, 87-lens, 88-lens, 89-lens, 90-lens, 91-lens, 92-lens, 93-lens, 94-lens, 95-lens, 96-lens, 97-lens, 98-lens, 99-lens, 100-lens.



MURKE & JAMES, INC.
321 E. Wabash Chicago 4, Illinois

ation material designed for making high-speed prints from several camera film originals.

One of the advantages of these new color materials is the fact that both the camera and the print film can be processed in the same solutions and with the same equipment. This is particularly advantageous in the production of high-security defense record film because processing can be done at the same laboratory for both original and print film. This special processing advantage can also be useful where it is important to obtain a color print from the original as quickly as possible. In addition to security considerations, this would be helpful, say, where movies are taken on a firing range or test site, and it is desirable to have prints as quickly as possible. In a suitable machine the whole process can be run through the one set of chemicals.

The high speed of the toughest emulsion makes it possible to photograph, with no additional lighting equipment, in-plant movies for training of employees, for time/motion studies, or progress reports required in government contracts. It also has a wide potential in sales presentations, both to dealers and for public relations films.

For general production work under favorable lighting conditions, Ektachrome Commercial Film is ideally suited because of its lower contrast and better definition. Should Ek Film be brought in for the tricky light condition, a slight problem arises. In preparing a print for projection it has been found advisable to intercept only at obvious scene changes.

Raw stock and latent image-keeping characteristics of these new camera and print films have proved similar to those for other color films.

The above is based on a full technical description of Eastman Ektachrome Ek Film light and Type 8 Film and Ektachrome Bicolor Film presented at the Society of Motion Picture and Television Engineers' Convention in Los Angeles, May 14, 1960. Illustrations are used with the permission of the S.M.P.T.E. Journal, which gives early publication of technical papers on this subject.

THE FSZOL PROCESS

Continued From Page 427

processing tanks or similar roll take-up devices, simply did not produce consistently clear results from one end to the other of a hundred-foot roll of film—due to the fact that the be-

ginning and end of each roll received less developer and agitation than the center portion. This led to adopting a circular dig-back type of developing unit. This produced superior processing of news and TV commercial films and resulted in improved TV transmission of this type of video material.

With our processing problems apparently overcome, everything went along fine until an over-zealous sales representative of the station sold an account a schedule of film commercials which required much more of my time to shoot and longer hours in the darkroom.

When the pressure backed up and produced a jam, I was asked, "Why don't you send the film to a professional lab?" That was an easy question to answer, for the commercials invariably were shot in the morning, rushed to the station and processed, then edited into the station's programming of afternoon and late movies of the very same day! No commercial lab within convenient distance could give us the service necessary to meet such a deadline.

The Food "process" is an outgrowth of my experience in reversal-developing of news slides for TV, in which the reversal process is brought to a halt following the bleach washing. The resulting semi-transparent creamy-looking unexposed silver salts formed an image that proved more than satisfactory for television transmission. The next step was to apply it to motion picture film. (See illustrations.)

The theory behind the thinking that led to working out this process takes into account the manner in which the average TV set functions. Actually, the screen of a home TV set is an off-white color when not in use; but when turned on, the ratio of white to dark areas in the picture content produces an illusion of solid blacks and whites giving the appearance of a picture having high contrast. I theorized that if this illusion works for TV, it might also work when partially-developed film was transmitted (televised). Also, it would lead to saving fully an hour of processing time, using the hand-processing method at the station.

The first step was to shoot a hundred-foot roll of film for a test. This was subjected to the first developer for a period of 6 minutes, then washed for 5 minutes, and bleached for the

same amount of time. A surplus of wetting agent was added to the final wash, the film sparge-dried, then dried in warm air. Total time for the process was 27 minutes, and the film was ready for editing or direct projection. (Incidentally, this method can produce reversal prints in small automatic film processors, such as the Bridgman or Fauchald outfit, but requires some experimentation to determine the correct speed and temperature for the particular unit.)

The advantage of utilizing for TV transmission the undeveloped image produced by the method described above is that the darkest area in the print can still pass a portion of the projector light, allowing greater electronic control of the televised image, and produces superior quality over a normal black-and-white print.

The bleached print, incidentally, may be screened with any ordinary beam projector for addition or inspection purposes. Later, it can be run through the remainder of the reversal solutions (omitted in the Food process) to convert it to a normal black-and-white print.

A one-minute commercial produced by this method has been telecast weekly for a period of two months with no apparent deterioration in aural or visual quality. All our news and commercial films at KIVA-TV are now being processed by this short-time method, which is recommended to other TV stations, working on limited budgets, as a means of saving time and money.

CHESTERFIELD COMMERCIALS

Continued From Page 422

on both sides of an assembly line that turns out a car a minute required shooting an area with substantial depth of field and working in close quarters to following the production process down the line... and not delaying that process for even a second.

American Film Productions of New York, which turned out the TV film series, decided that portable equipment and fast film requiring a minimum of lighting was the answer.

The film chosen was Kodak Tri-X negative. Cameraman Stanley Meredith has been using Tri-X in similar interior situations since its introduction. For lighting, AFP utilized a minimum of ten ColorTron Master-Lites that provided up to 5000 watts of illumination

Enc. Send copy with remittance to cover payment to Editorial Office, American Geomorphologist, 1782 No. Orange Drive, Hollywood 28, Calif. Please close let of month preceding date of issue. No discount on Classified Advertising.

Continued on Next Page

Classified Ads

Continued from Preceding Page

SERVICES AVAILABLE

LINWOOD DUBAI, ASC, offers background of 28 years of experience as specialist cinematographer with 100 Studios in production companies for creative and unusual assignments in fields of special photographic effects, cinematography, equipment design and specialized laboratory services. Current equipment: West Side Story M-1 1112 N. Hollywood Ave. Hollywood 36, Calif. Phone HOLlywood 9-8328.

ACTION PICTURE CAMERAMAN now accepted photographing news and commercial footage. Skills developed: have done motion picture camera work in present position over five years. Box 1072, AMERICAN CINEMATOGRAPHER.

LABORATORY & SOUND

ROCKY MOUNTAIN SOUND REPRODUCTIONS
Dubbing • Mixing • Recording • Editing •
Mastering • Sales. All types of film to stock.
Write for Price List.
WESTERN CASE SERVICE, INC.
114 E. 8th Ave., Denver 2, Colorado. AINland 4-3691

SOUND RECORDING at a reasonable and High Fidelity in or out of your own home. Complete studio and laboratory services. Color printing and repair. Calling (800) 833-0000. PICTURE SERVICE INC., 2118 George Avenue, Cleveland 2, Ohio. Phone (216) 363-0101.

Trends

Directors of photography, camera department heads, industrial and television film producers, film laboratory heads—these men and their assistants are cover-to-cover readers of *American Cinematographer* because they wish to keep informed on motion picture production trends, new cinematographic equipment, new techniques—which today, more than ever, is "must" news for them.

When appearing next to this important "must" news, your advertising gains prestige and importance. A trial ad will convince you.

AMERICAN CINEMATOGRAPHER
Advertising Department
1782 No. Orange St., Hollywood 28, Calif.

Movie Cameras Monitor Speedway Racers

SPECIAL MOTION PICTURE CAMERAS for the first time recorded the finish of the annual 500-mile auto race at the Indianapolis Motor Speedway May 30th to "provide additional assurance of absolute accuracy" in judging placements of cars which finish the grind.

"The use of Bell & Howell high-speed camera equipment provided additional assurance of absolute accuracy in case of a photo finish," says Tony Holman, Speedway president.

The problem of "snapping" a race car moving at about 270 miles per hour was difficult to solve, according to Jerry Brins, Bell & Howell motion picture expert.

The 16mm camera that did the job operated at 128 frames per second.

"We used three cameras for recording the finish—one shooting, one ready to shoot, and one being loaded. They all were equipped with 500-foot magazines of film rated at A.S.A. 500 when exposed at 128 frames per second. The shutter speed was 1/1250th of a second, achieved through use of a narrow 10-degree opening in the shutter. One-inch f/1.9 Bell & Howell Super Contar lenses covered an area of 30 feet before and 20 feet after the finish line," Holman said.

The film was exposed within about 15 minutes immediately after the end

of the race in a darkroom directly below the officials' platform and given to the judges. In this way race officials had an indisputable picture record of the exact order of finish within a matter of 8 hours instead of after two or three days of discussions between car owners, drivers and track officials, as has often been the case.

In addition to the super-slow motion cameras, Bell & Howell equipment was also used in an official function when the yellow caution light was flashed on, signaling trouble on the two-and-a-half mile track.

"It was extremely important for us to make certain all cars maintained their respective positions while running at reduced speed under the yellow caution light, in case of a hazardous condition on the course while the race was in progress," said Holman.

This is the first time official photographers have been named for the classic. For the first time officials had a concrete record on film of both the finish and any violations of rules to eliminate post-race controversy. They were especially impressed with the "psychological value" of the film obtained with cameras during the "yellow light" intervals and believe such records will tend to reduce violations of the rule and also protests.



INDIANAPOLIS SPEEDWAY race driver Jim Rathman (standing, left) looks ahead high-speed movie cameras use of super-slow motion during the auto race. Behind Rathman (left) are officials, and other race officials (right) look down at the track. In the background, the race track is visible.

A NATIONAL INSTITUTION

W. J. GERMAN, Inc.

BIGGEST AND OLDEST AGENCY FOR

Sales And Distribution

**EASTMAN PROFESSIONAL
MOTION PICTURE FILMS**

Negatives Positives

Color Black - And - White

Prompt Service — Everywhere

**Fort Lee,
New Jersey**

**Chicago,
Illinois**

**Hollywood,
California**

what
DO I DO
now?



... call **byron** / motion pictures
of course!

COMPLETE LABORATORY AND STUDIO FACILITIES FOR PRODUCERS . . . UNDER ONE ROOF . . .
IN ONE CONVENIENT LOCATION. Write, phone or wire for information and quotations on any and all
producer and laboratory services.

byron / motion pictures

1226 Wisconsin Ave., N.W., Washington 7, D.C., Federal 3-8000

1220 East Colonial Dr., Orlando, Florida, Cherry 1-4161

Affiliated with MECCA FILM LABORATORIES CORPORATION, 630 Ninth Ave., New York City